GOVERNMENT OF DUBAI

المجلس الأعلى للطاقة
Supreme Council of Energy

December 7, 2015

DSM STRATEGY 2030
Green Buildings and Energy Management

The Dubai Integrated Energy Strategy 2030

The Demand Side Management Strategy is part of the Dubai Integrated Energy Strategy 2030

Demand Side Management Targets

Electricity consumption savings:

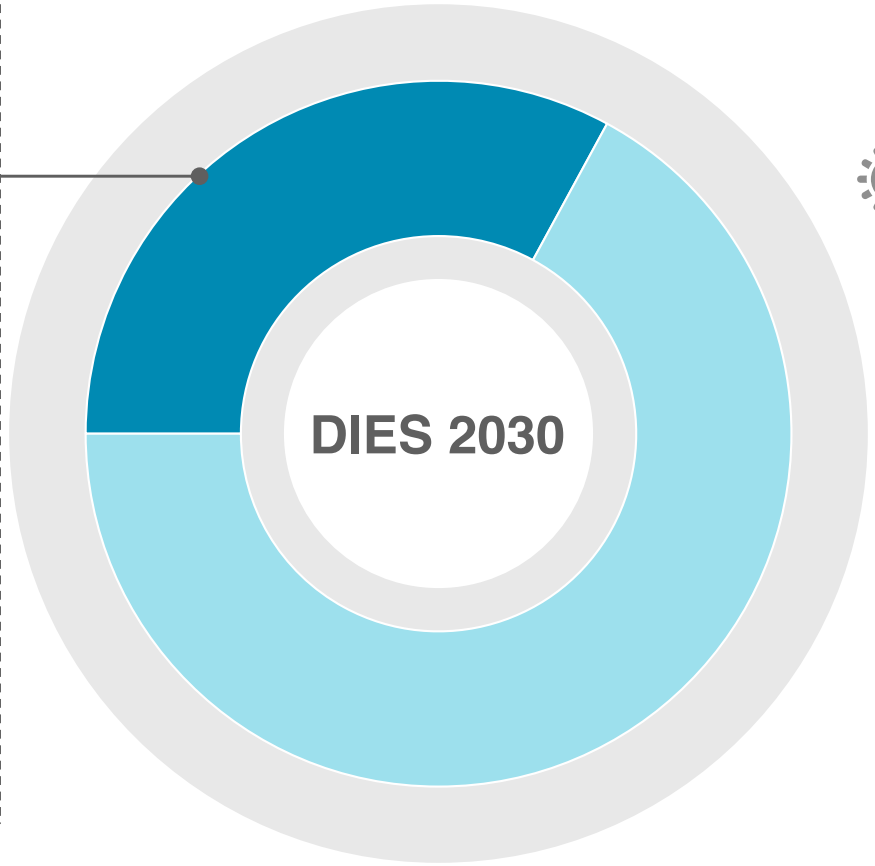
30%

by 2030 vs. BAU

Water consumption savings:

30%

by 2030 vs. BAU



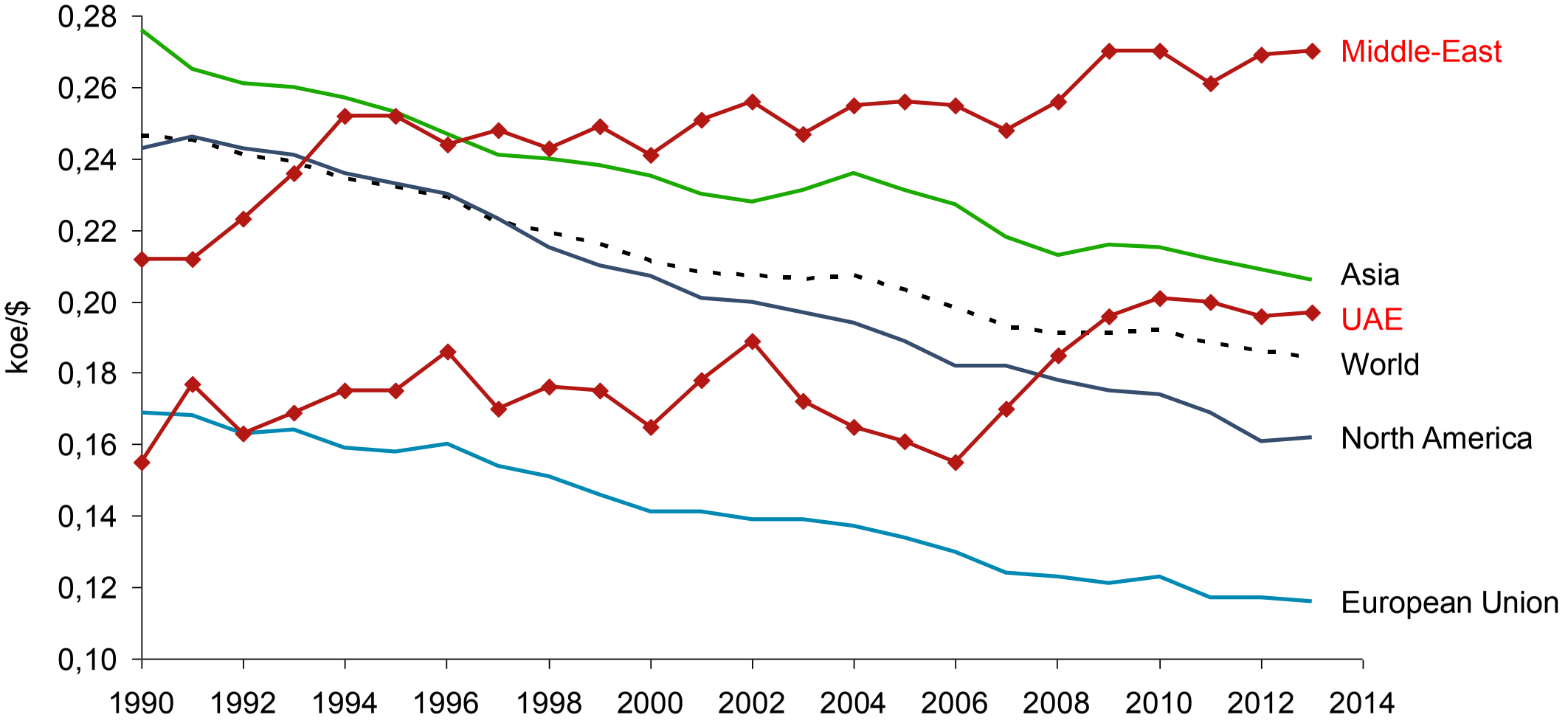
Supply Side Targets (Energy Mix)

Solar

Clean coal

Nuclear

Comparison of energy intensity of GDP by continents and groups of countries over the last 15 years

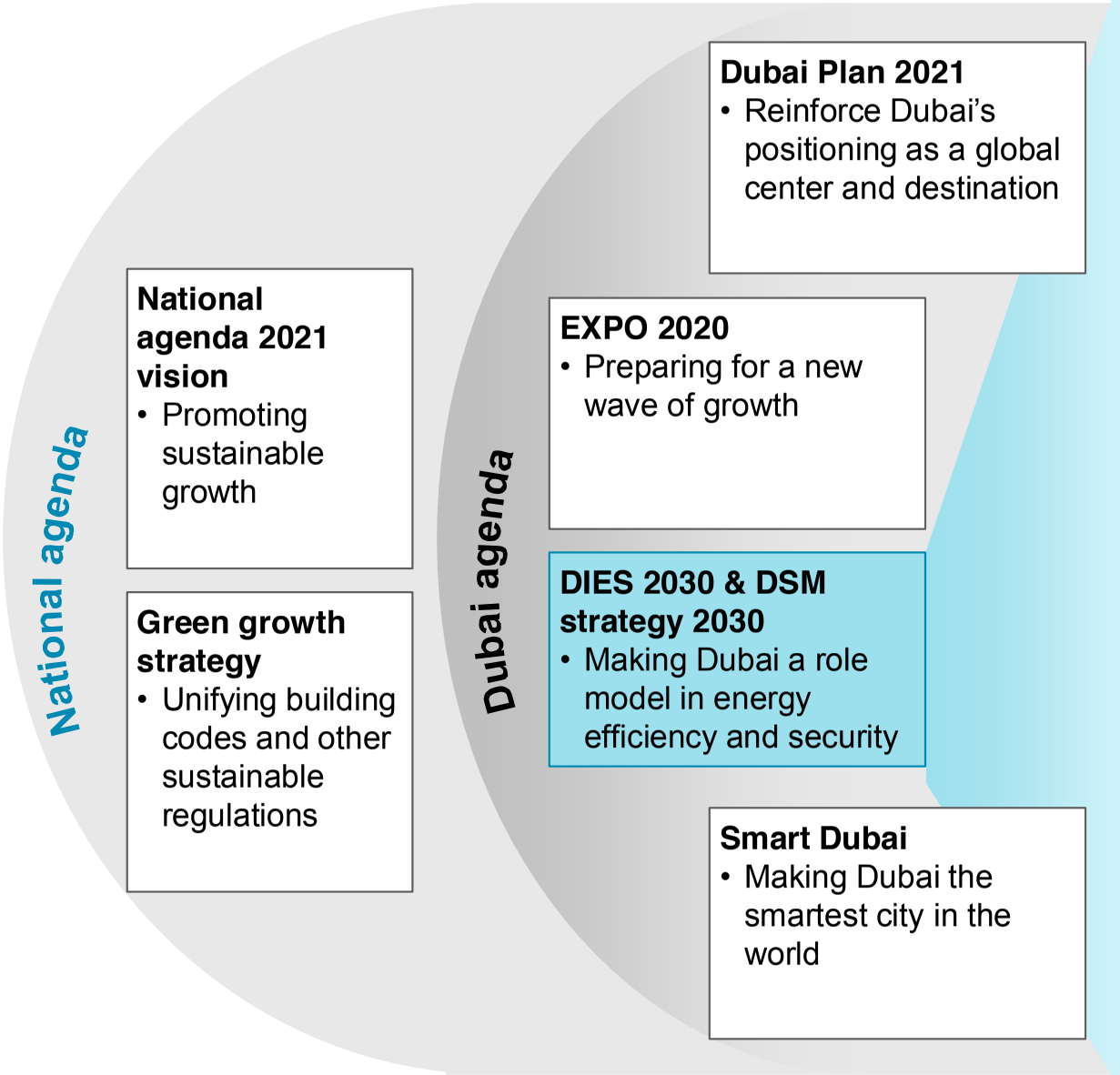


Advanced countries worldwide are setting ambitious long term targets for energy efficiency improvement
(i.e. California to reduce consumption by 80% by 2050)

Source: Enerdata, Global Energy Statistical Yearbook 2014

Context for DIES and DSM

DIES and DSM fit with a series of initiatives in Dubai and UAE



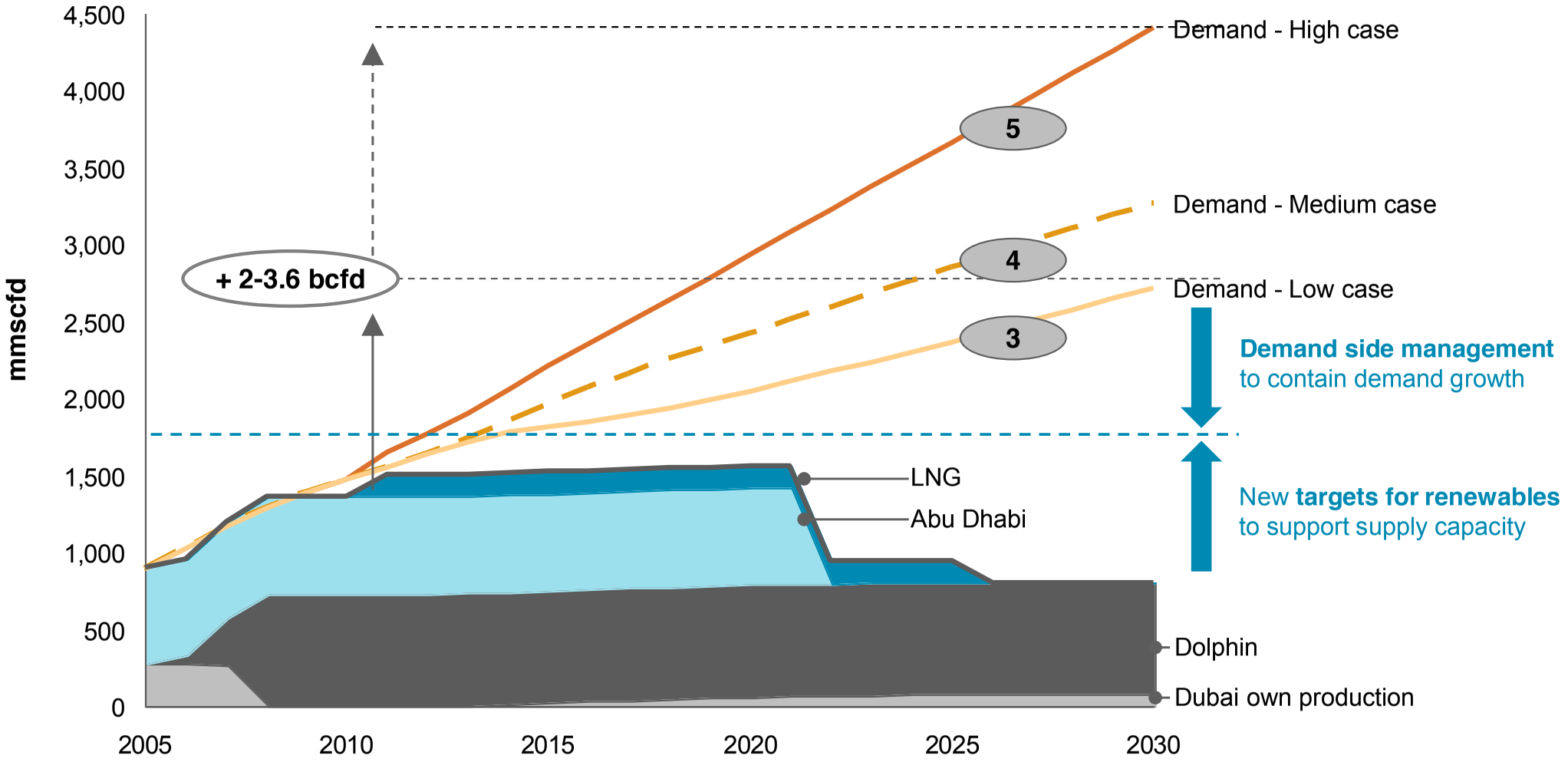
How the DSM Strategy fits UAE and Dubai strategy

- Promotes energy conservation by affecting consumption behaviours
- Creates additional jobs and capabilities through efficiency initiatives (e.g. energy efficiency services)
- Supports energy security by inducing lower dependency on external supply and lower exposure to price volatility
- Supports safety and environment, by introducing modern equipment and best practices (e.g. xeriscaping, TSE)
- Promotes the creation of a smart city by introducing/extending the use of new technologies (e.g., remote load control, BMS, control sensors, smart grid…)

The issues that we are trying to address

DIES and DSM were initiated in response to a projected increase of demand for energy, which would require significant supply capacity build-up

Projected supply and demand for Dubai (from DIES study in 2010)

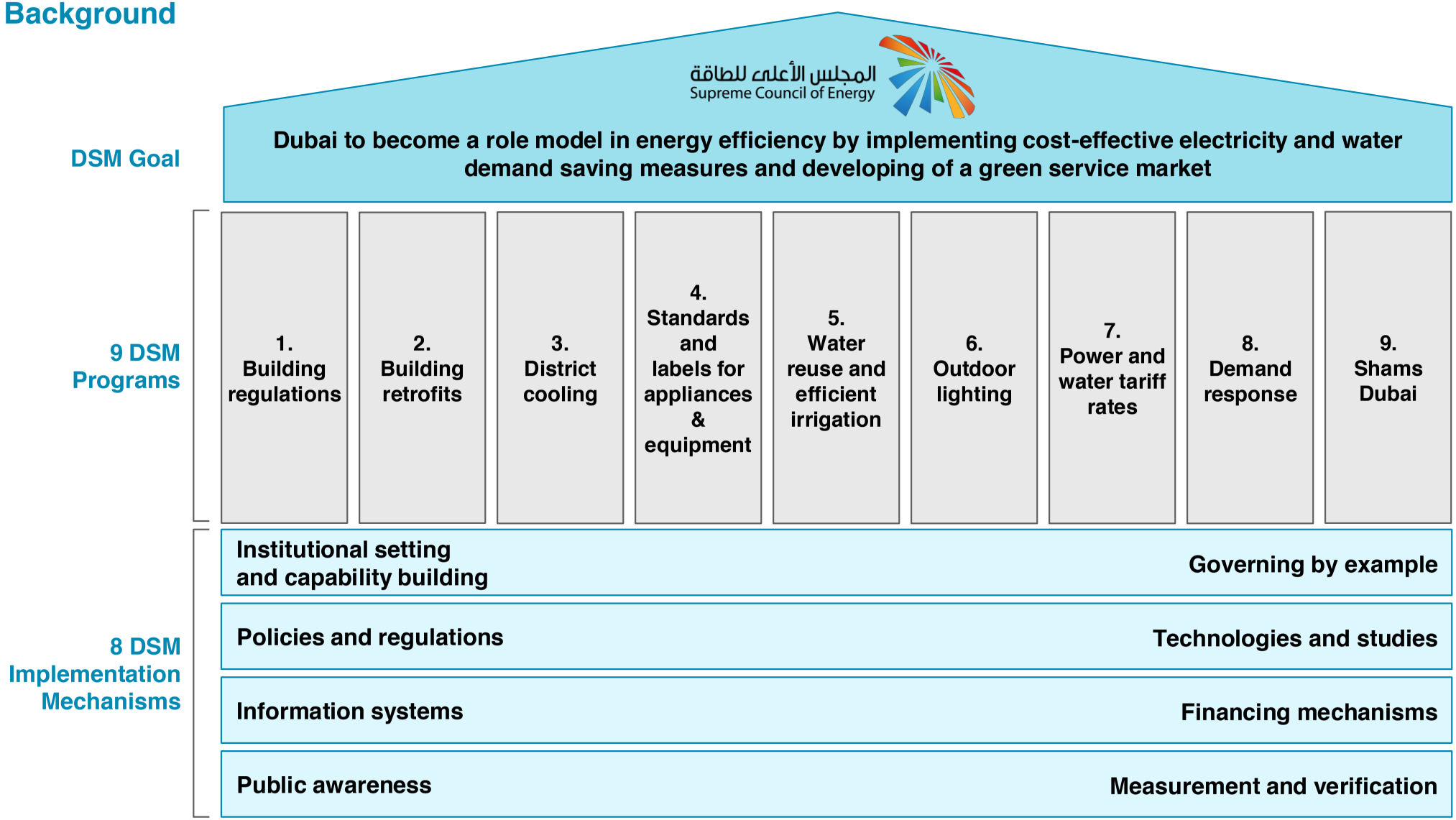


Source: DIES 2010

DSM scope and objectives

The DSM strategy comprises 9 main programs, supported by 8 implementation mechanisms

Background



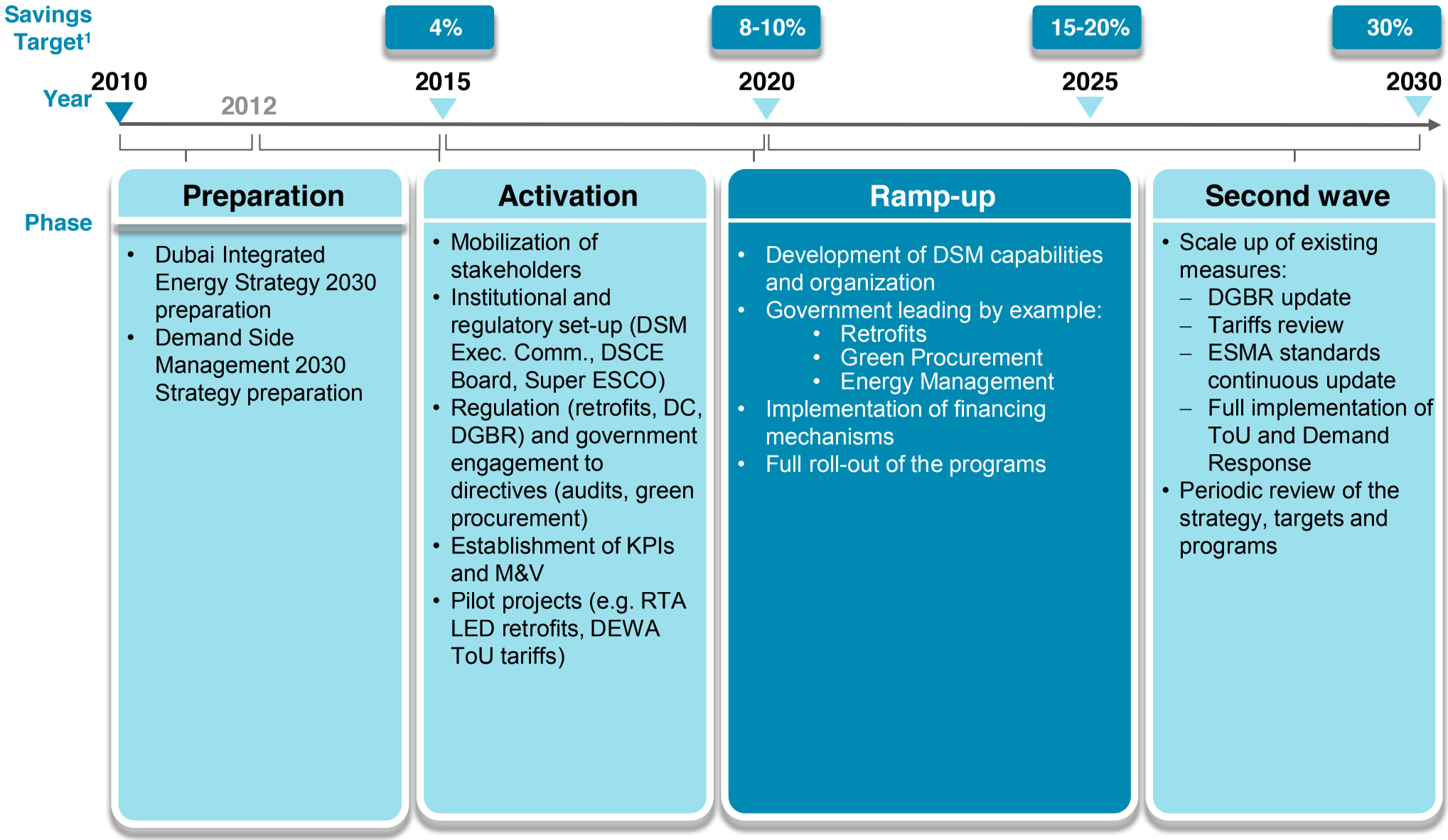
DSM programs

The programs are designed to address specific aspects of demand leading to reduced energy and water consumption

	Program	Scope
1	**Building regulations**	• Implement and periodically update the existing DM **green building code** • Introduce a **labelling scheme** for buildings
2	**Building retrofits**	• Execute a **retrofitting** program for the existing buildings, targeting the main consumption drivers: cooling, lighting, water, industrial processes, building envelope, etc. • **Ambition to retrofit about 30,000 buildings by 2030** • Start from government buildings, followed by commercial and residential buildings
3	**District Cooling**	• **Increase penetration of district cooling (DC) from 16%** of refrigeration capacity in 2011 **to 40%** in 2030 by regulating the district cooling industry
4	**Standards and labels**	• Introduce minimum energy efficiency standards and **star rating system** for appliances and equipment • Categories cover: air conditioners, lamps, large appliances, water heaters, electronics, electric motors and water fixtures
5	**Water Reuse and Efficient Irrigation**	• **Reduce use of desalinated water for irrigation** by promoting **efficient landscaping** practices and irrigation technologies and **maximizing the use of TSE** (100% of public areas irrigated with TSE)
6	**Outdoor Lighting**	• Use more efficient lighting fixtures (**retrofitting 75% of existing lights**) and expand the **switch-off** initiative to **100% of residential areas**
7	**Change of Tariffs Rates**	• Review tariff rates to promote energy conservation and economic efficiency of consumption decisions
8	**Demand Response**	• Gradually introduce **time-of-use tariffs, curtailable load management and direct load control** to reduce future capacity needs and environmental impacts
9	**Shams Dubai**	• Encourage households and building owners to **install PV panels to generate electricity**, and connect them to DEWA's grid to allow transfer of surplus generation

DSM roadmap

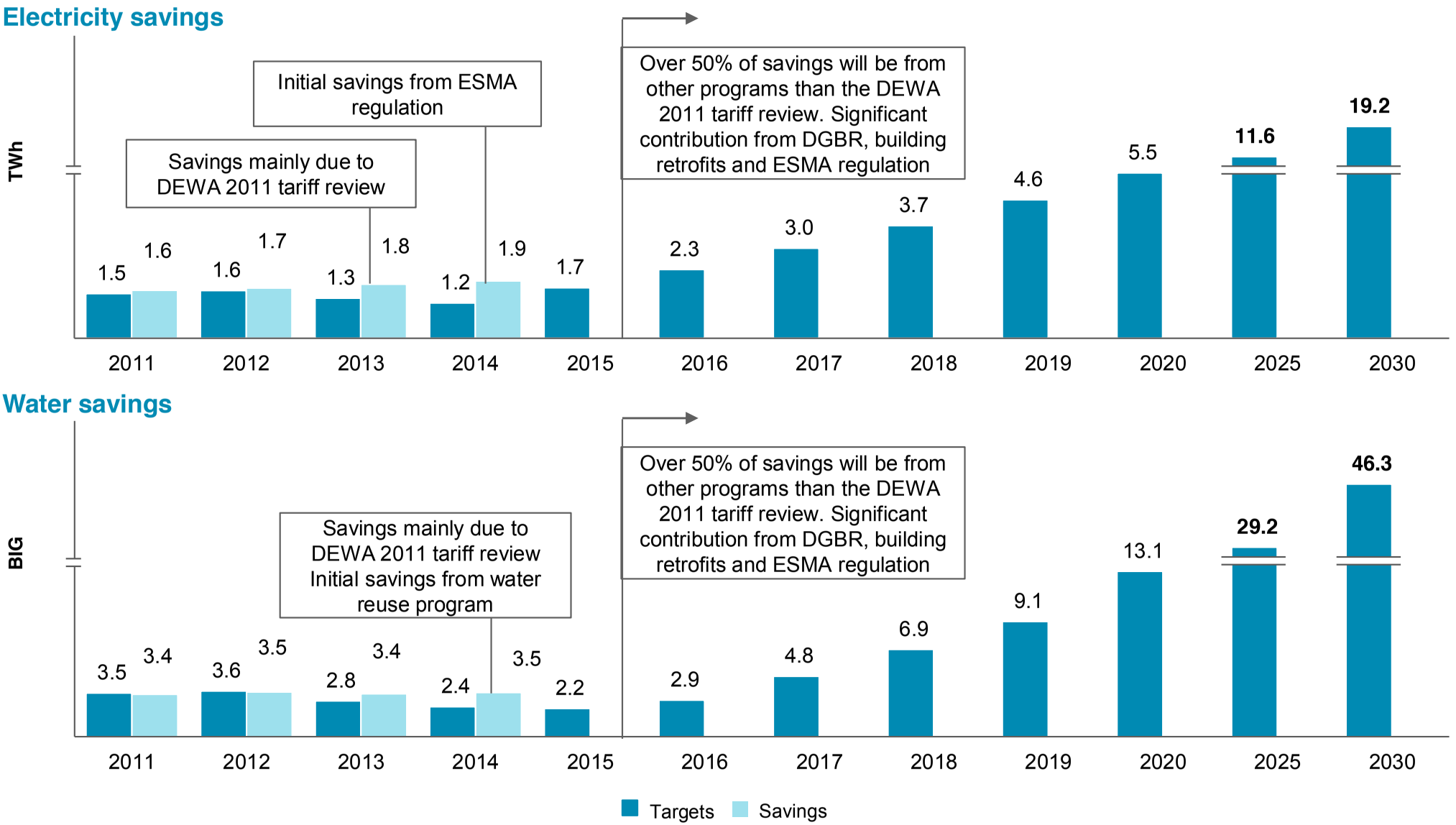
We have a well defined roadmap that will lead us to our long term goals



1. % consumption savings targets against baseline

DSM performance: savings vs. targets

The DSM programs are meeting initial savings targets in preparation for a strong ramp-up in the coming years



Buildings as the main drivers of consumption

The DSM Programs foresee significant actions to improve our asset base, in particular our buildings

Our Main Drivers of Energy/Water Consumption

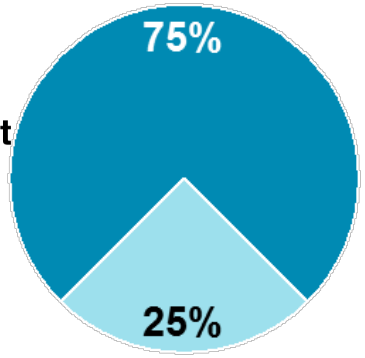
Buildings

Appliances

Outdoor lighting

Greenery and irrigation systems

Share of Target Savings from Buildings



New Buildings

Old Buildings

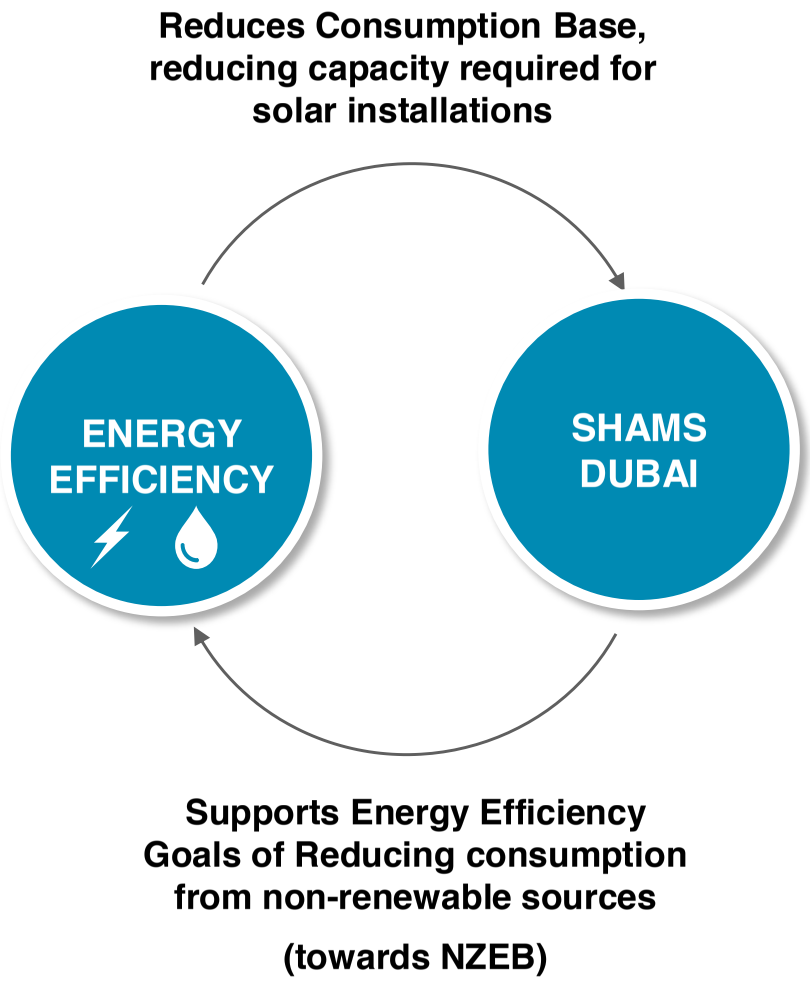
DSM Programs Focused on Buildings

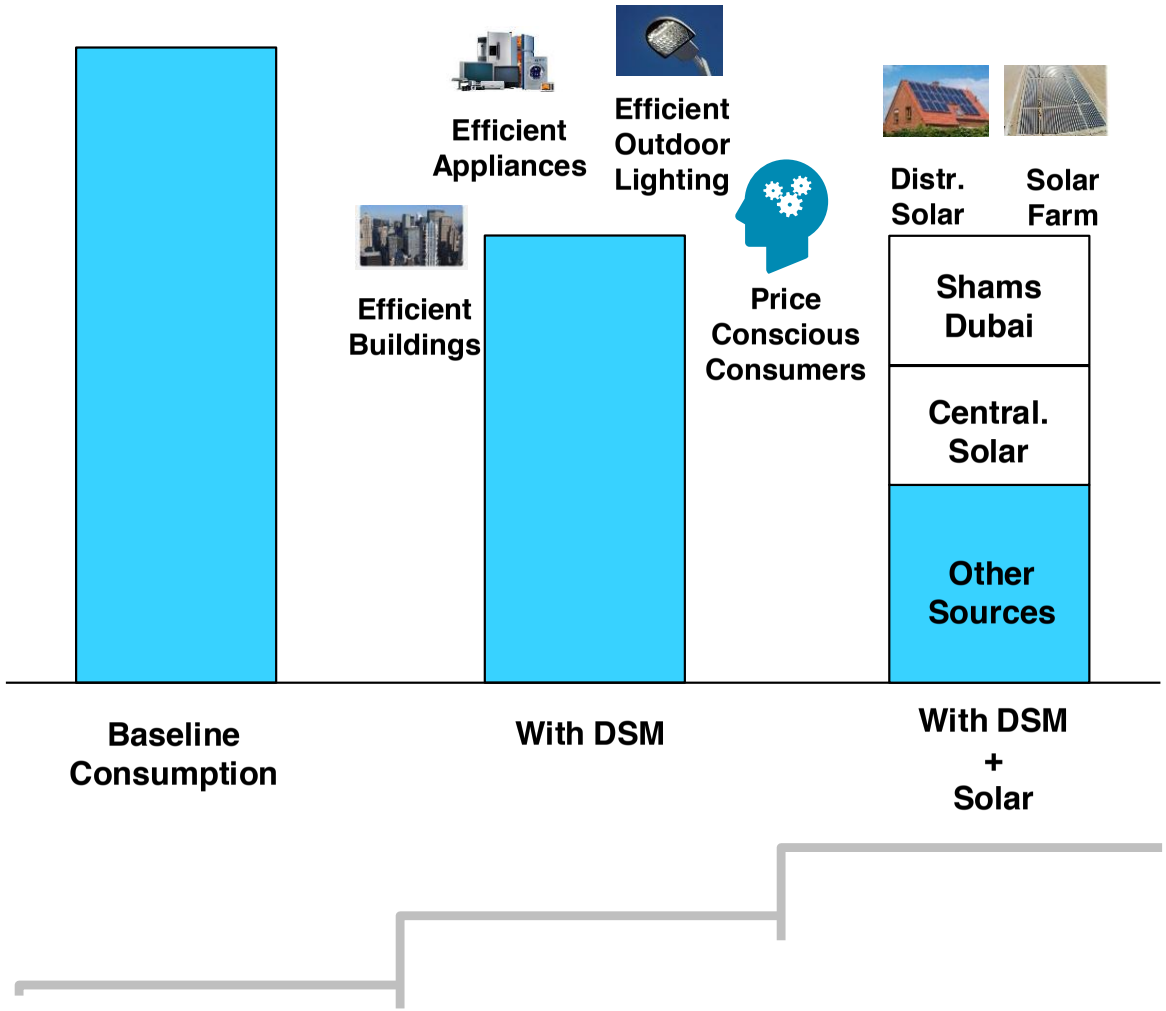
- DGBR
- Similar Regulatory Efforts in Free Zones
- Retrofit Program, addressing 30,000 buildings
- Supported by DSCE Directive No 1, 2015

SHAMS DUBAI

DSM and Shams Dubai

The DSM strategy has recently seen launch of Shams Dubai, supporting energy efficiency with distributed generation from renewables





Completing the picture: DSM and energy management

In parallel to improving our assets, we should support energy management practices to ensure savings from investments are sustained over time