



المجلس الأعلى للطاقة
Supreme Council of Energy

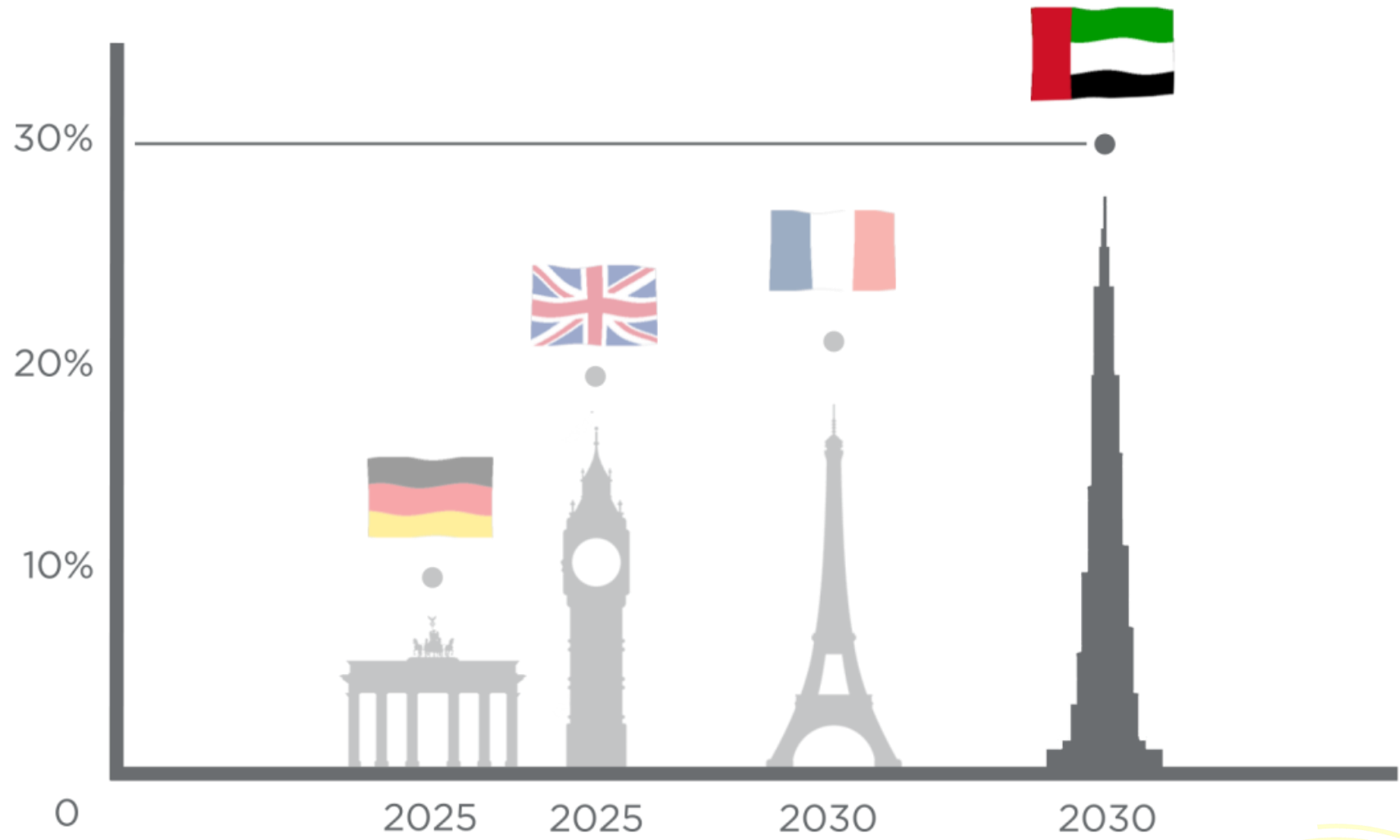


DEMAND SIDE MANAGEMENT STRATEGY 2030

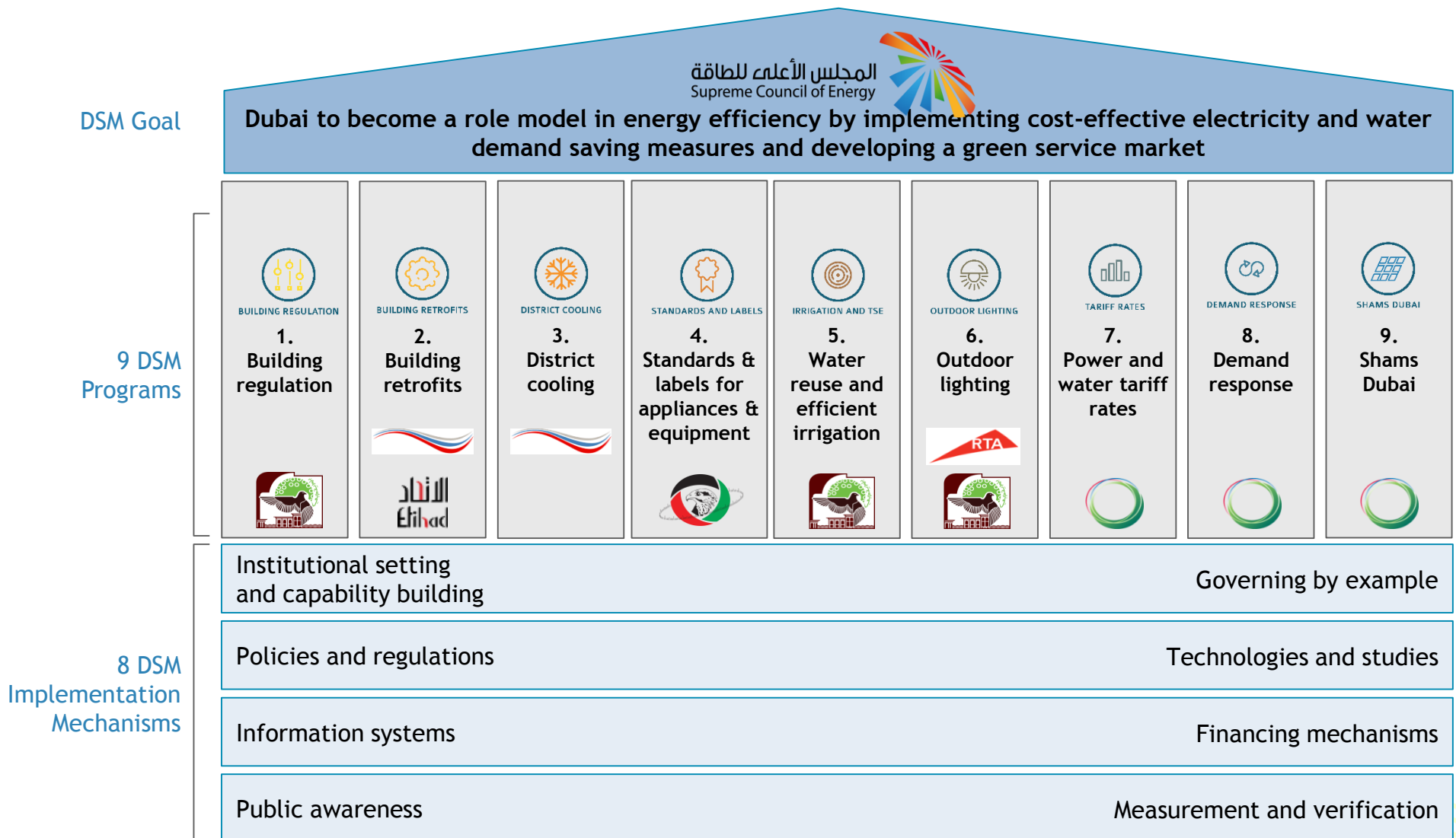
2015 DSM Savings Highlights - Public Version

19th of September, 2016

Dubai has set ambitious targets for its DSM Strategy of 30% savings of electricity and water by 2030



The DSM strategy comprises 9 main programs with specific targets for 2030, supported by 8 implementation mechanisms



In 2015, all DSM programs are meeting initial savings targets in preparation for a strong ramp-up in the coming years in Electricity

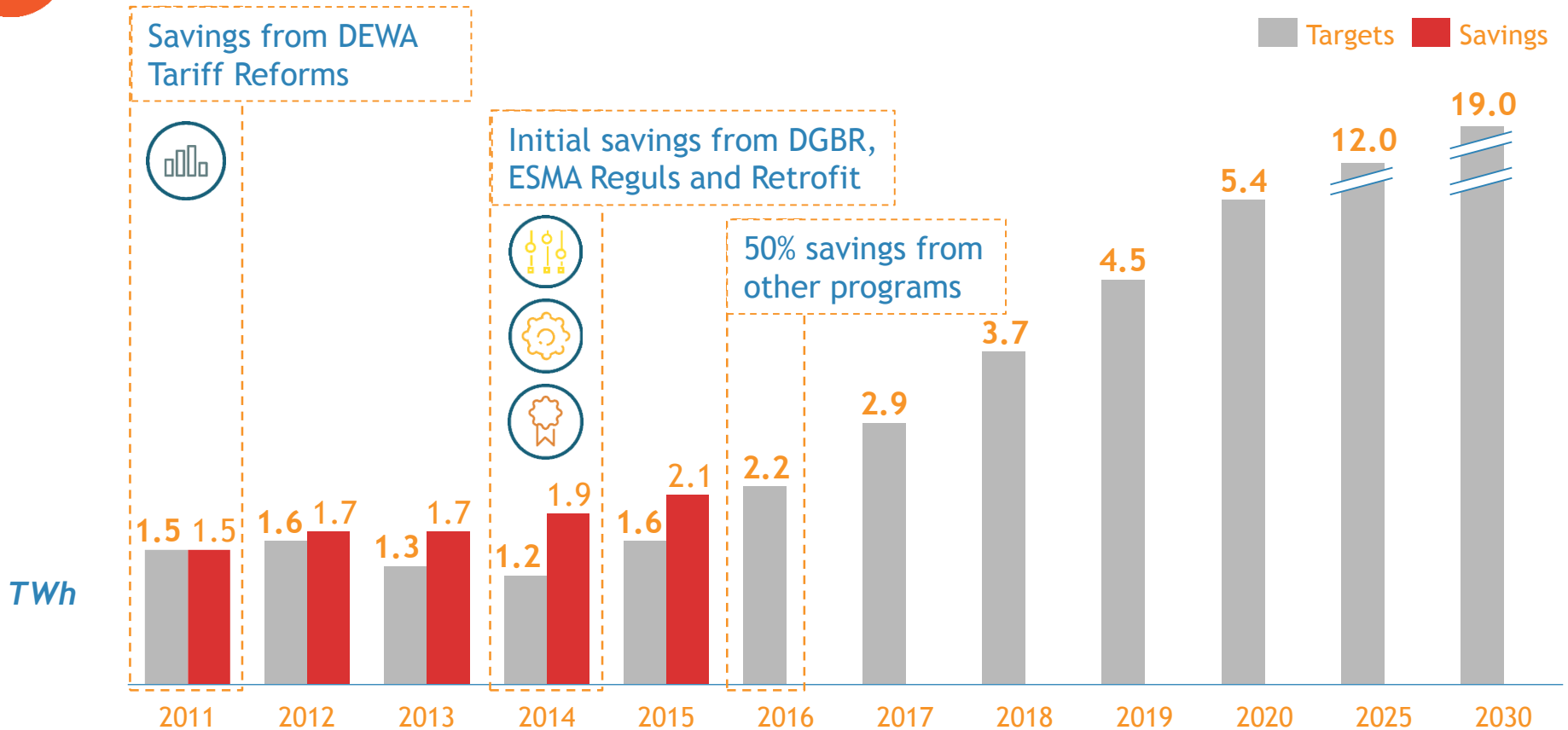


Electricity Savings

(TWh, 2011 to '15 actual, 2016 to '30 target)

Base Case

■ Targets ■ Savings



Savings vs. BAU



Source: DSM Program Owners, TAQATI analysis



... and the same thing for Water

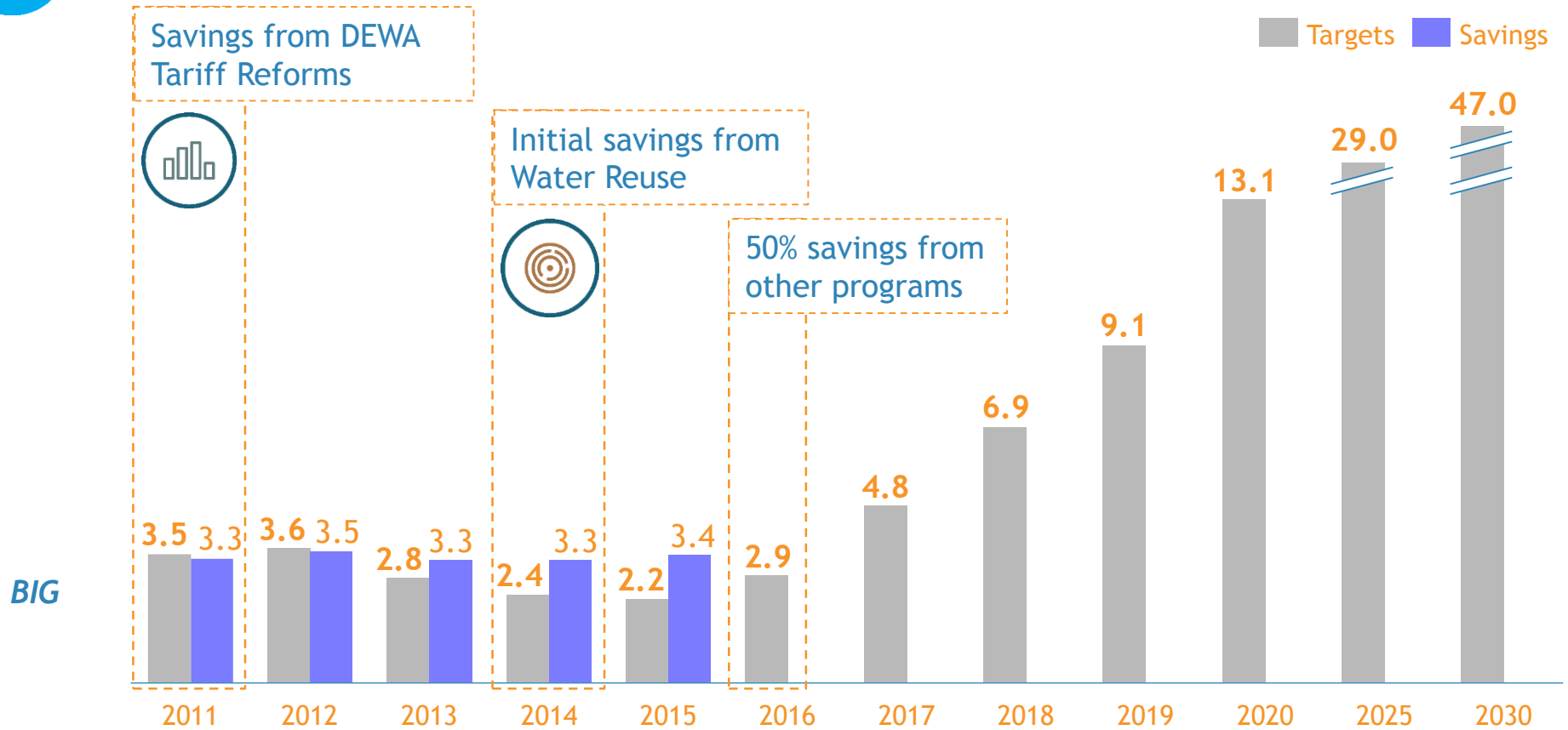


Water Savings

(BIG, 2011 to '15 actual, 2016 to '30 target)

Base Case

Targets Savings



BIG

Savings vs. BAU



Source: DSM Program Owners, TAQATI analysis

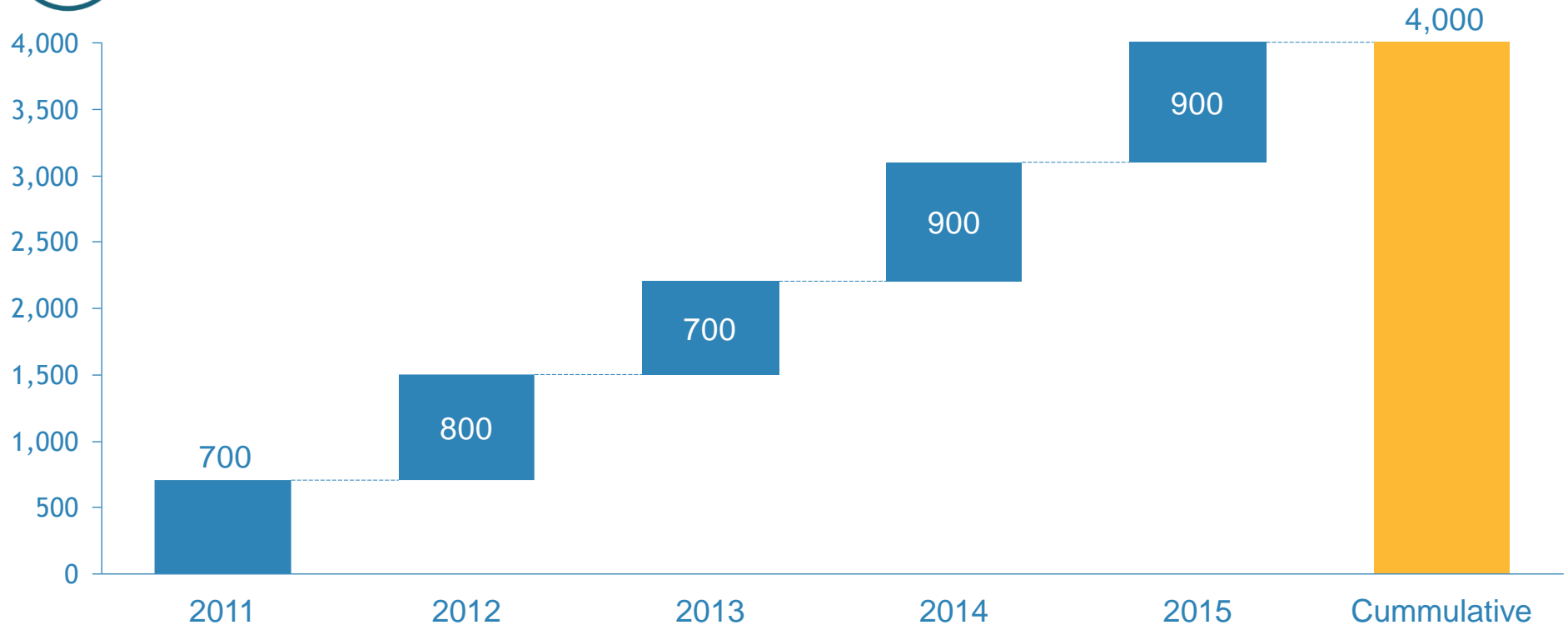


At average energy and water tariffs, the DSM Strategy has brought until end of 2015 over AED 4.0 Bil. of cumulative savings to consumers on their utility bill



Monetization of Operational Savings (Million AED, calculated; excl. avoided Capex, excl. investments)

Base Case



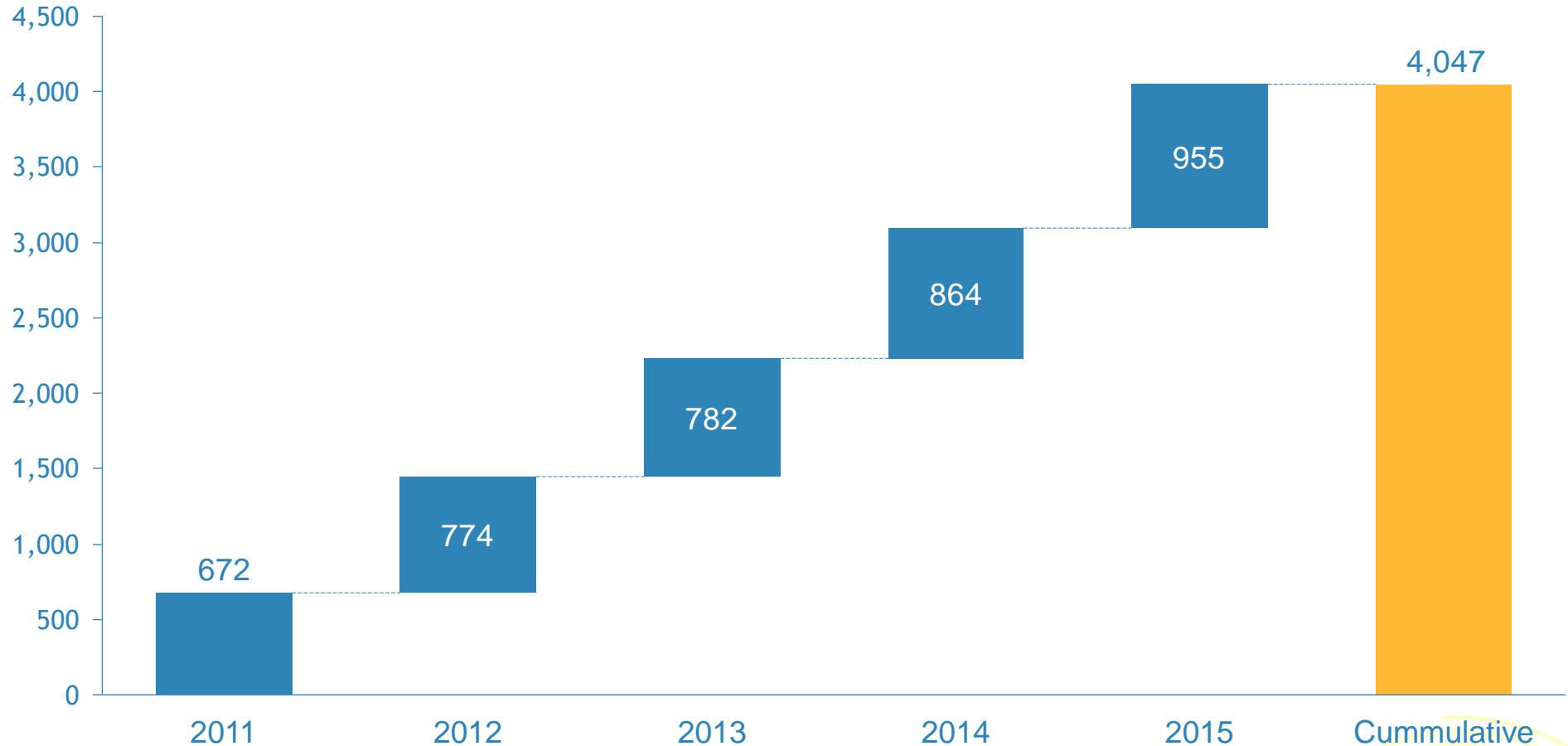
Rationale

- Estimated economic benefits do not include avoided capital investments in generation capacity and grid expansion
- Net benefits to be calculated by deducting investments and costs of implementing the DSM Strategy

Electricity and water savings result in about 1 Mil ton of avoided CO₂ emissions in 2015, and about 4 Mil ton since the start of the DSM Strategy

Avoided CO₂ emissions due to the DSM Strategy (‘000 Ton of CO₂, 2011 to '15 actual)

Base Case















Note: Conversion rate of MWh to Tons CO₂e with the current power generation mix we have in Dubai grid, the number we use is 1 MWh = 0.46 Ton CO₂e
Source: DSM Program Owners, TAQATI analysis

All programs today contribute to electricity savings, with a strong uptake of standards from ESMA and a decreasing impact of the DEWA 2011 tariff review

| | | | | | | | BASE CASE |
|-------------------------------|--|------------------|------------------|-----------------|---------------|---------------------|--|
| DSM Program | | 2014 Savings GWh | 2015 Savings GWh | 2015 Target GWh | Delta YoY (%) | Dev. vs. target (%) | Comments |
| | 1 Building regulations | 93 | 156 | (2017) | +67% | + | Savings from DM and Trakhees codes on 906 commissioned buildings |
| | 2 Building retrofits | 4 | 12 | (2016) | +175% | + | Savings from 27 projects (13 new in 2015) addressing 27 buildings & facilities |
| | 3 District Cooling | 89 | 95 | (2017) | +7% | + | Savings from DC efficiency gains based on data from 4 out of 5 operators only |
| | 4 Standards and Labels | 353 | 550 | 566 | +56% | ~0% | Savings from A/C: 535GWh, Washing machines: 3GWh, Refrigerators: 13GWh |
| | 5 Water Reuse and Efficient Irrigation | n/a | n/a | n/a | n/a | n/a | No electricity savings expected from this program |
| | 6 Outdoor Lighting | 9 | 11 | 11 | +25% | ~0% | 96% savings from RTA, 4% from DM. 85% from switch-off , 15% from LED |
| | 7 Change of Tariffs Rates | 1,361 | 1,293 | 1,058 | -5% | +22% | Effect of 2011 tariff review, gradually decreasing over time |
| | 8 Demand Response | n/a | n/a | n/a | n/a | n/a | No consumption savings expected from this program (only peak reduction) |
| Total | | 1,909 | 2,116 | 1,635 | +11% | +29% | |
| Total as % of baseline | | 5.1% | 5.4% | 4.2% | | | |
| | 9 Shams Dubai | n/a | 0.3 | n/a | n/a | n/a | Generation in 2015 from the first 3 projects with installed capacity of 1.1 MW |
| Grand Total | | 1,909 | 2,117 | 1,635 | +11% | +29% | |

Water savings see an increasing contribution from the DM water reuse program (Program 5) and from the DGBR (Program 1)

| DSM Program | | 2014 Savings MIG | 2015 Savings MIG | 2015 Target MIG | Delta YoY (%) | Dev. vs. target (%) | Comments |
|--|---|------------------|------------------|-----------------|---------------|---------------------|--|
|  |  1 Building regulations | 87 | 144 | (2017) | +65% | | Savings from DM and Trakhees codes on 906 commissioned buildings |
|  |  2 Building retrofits | 0.002 | 0.002 | (2016) | +12% | | Initial savings from 2 reported projects |
| |  3 District Cooling | n/a | n/a | n/a | n/a | n/a | No water savings expected from this program |
| |  4 Standards and labels | | n/a | (2016) | | | No data for water savings available at this time |
|  |  5 Water Reuse and Efficient Irrigation | 50 | 196 | (2016) | +292% | | Initial savings from new irrigation standards and quantity/time optimization |
| |  6 Outdoor Lighting | n/a | n/a | n/a | n/a | n/a | No water savings expected from this program |
|  |  7 Change of Tariffs Rates | 3,180 | 3,103 | 2,231 | -2% | +39% | Effect of 2011 tariff review, gradually decreasing over time |
| |  8 Demand Response | n/a | n/a | n/a | n/a | n/a | No water savings expected from this program |
| Total | | 3,318 | 3,444 | 2,231 | +4% | +54% | |
| Total as % of baseline | | 3.4% | 3.3% | 2.1% | | | |

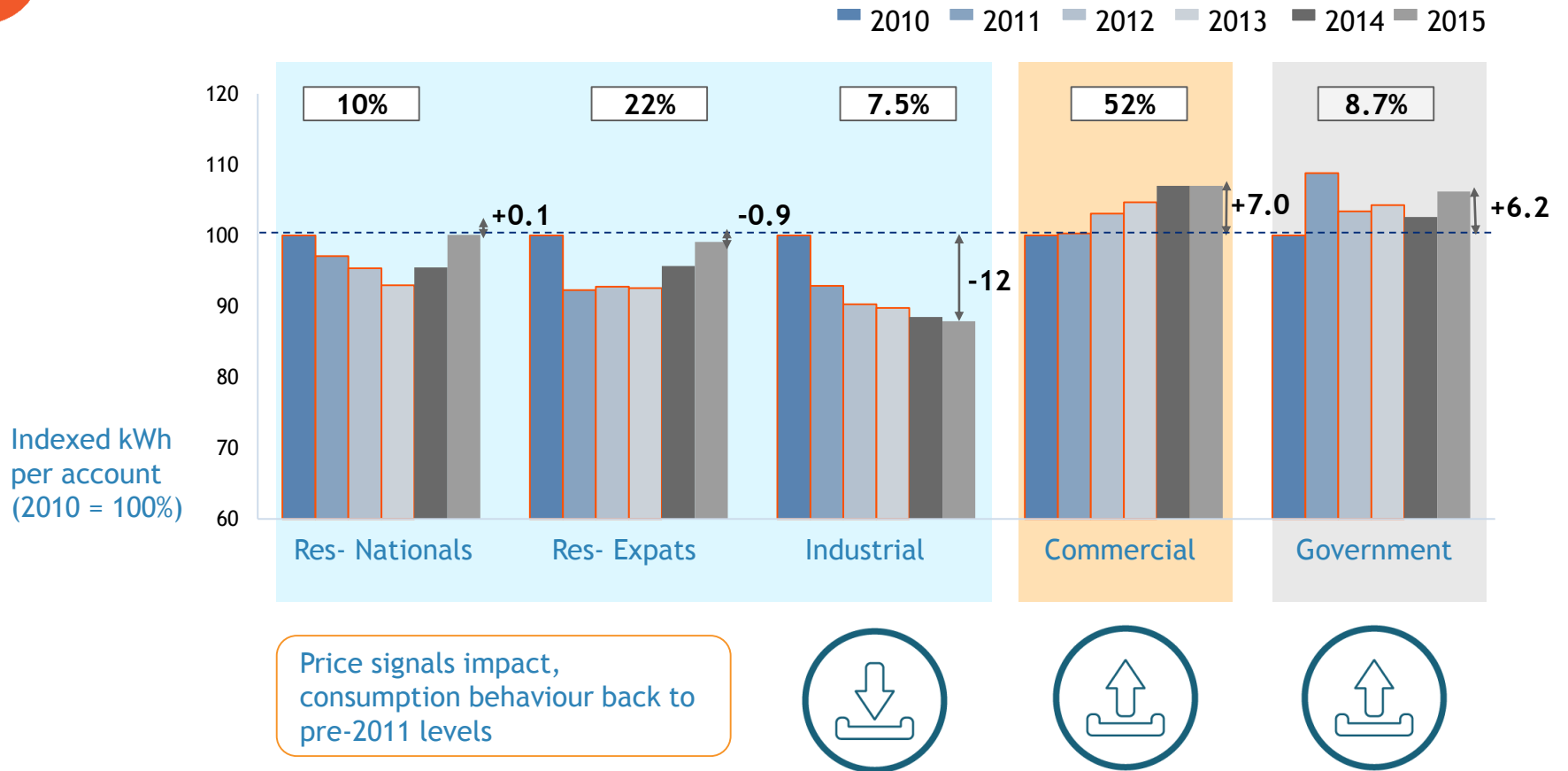
BASE CASE



In terms of electricity consumption per account, residential & government sectors show increase trends⁽¹⁾, while industrial confirms consistent savings



Power Consumption per Account (MWh, 2010-2015 Actual)



□ Sector share of total consumption in 2015

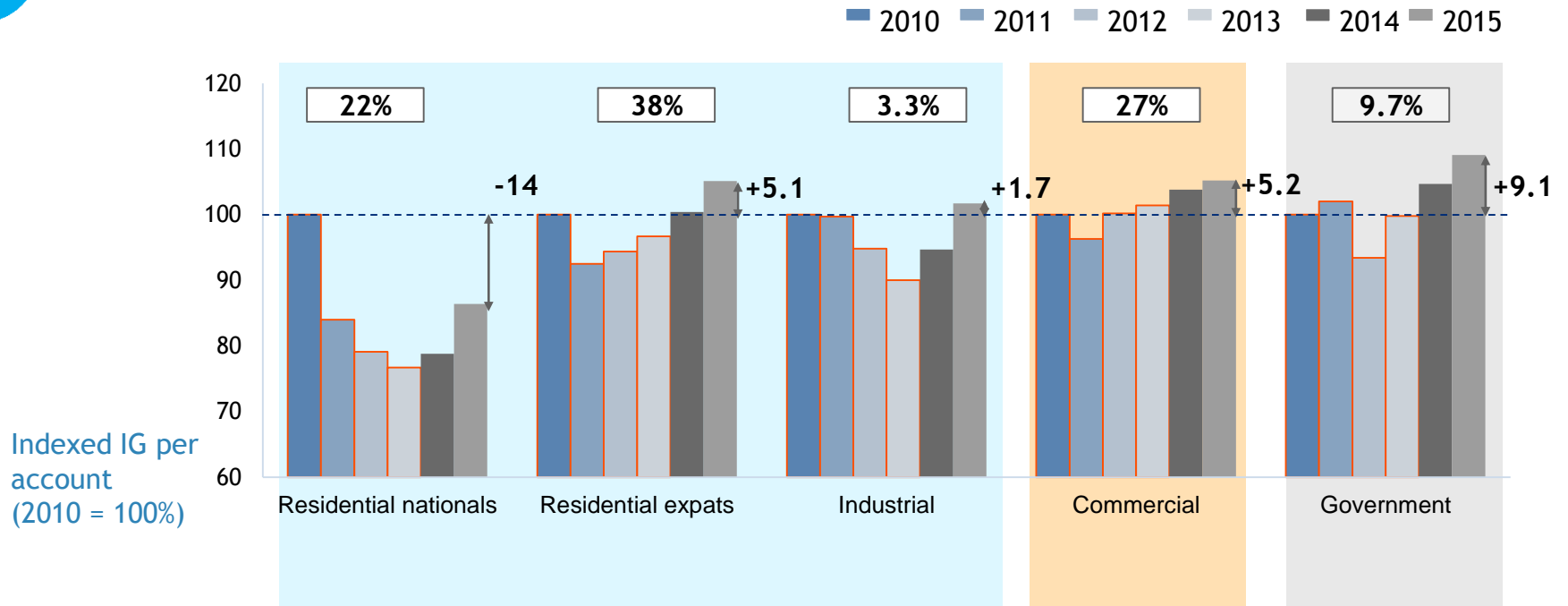
1) Changing consumption behaviors may be due to a variety of factors, including growing wealth, economic development, climate change and limited awareness
 Note: Definition of customer types refers to applied contract/tariff. Reported consumption refers to billed consumption (line losses or unbilled consumption not included)



As for Water consumption per account, Commercial and Government sectors show increase trends⁽¹⁾, while Res-Nationals confirms consistent savings



Water Consumption per Account (‘000 IG, 2010-2015 Actual)



Indexed IG per account
(2010 = 100%)



Price signals impact, consumption behaviour back to pre-2011 levels

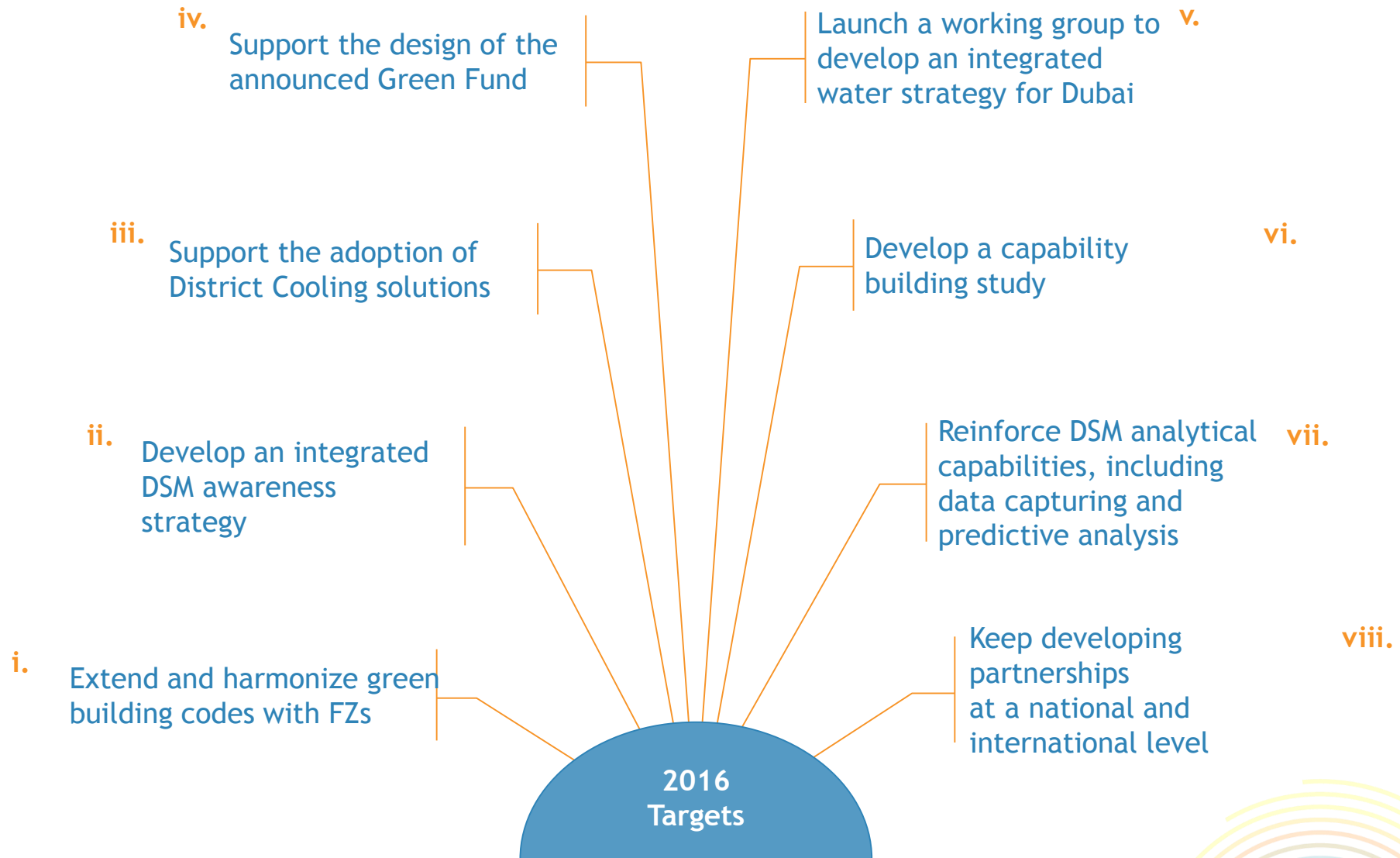


□ Sector share of total consumption in 2015

1) Changing consumption behaviors may be due to a variety of factors, including growing wealth, economic development, climate change and limited awareness
Note: Definition of customer types refers to applied contract/tariff. Reported consumption refers to billed consumption (line losses or unbilled consumption not included)



DSCE and the DSM Manager action plans for 2016 are aligned with those priorities



Annual Report for 2015 has been published in Arabic and English, and the public version has been made available online at www.Tagati.ae





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Supreme Council of Energy



Thank You

For clarifications or questions:

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