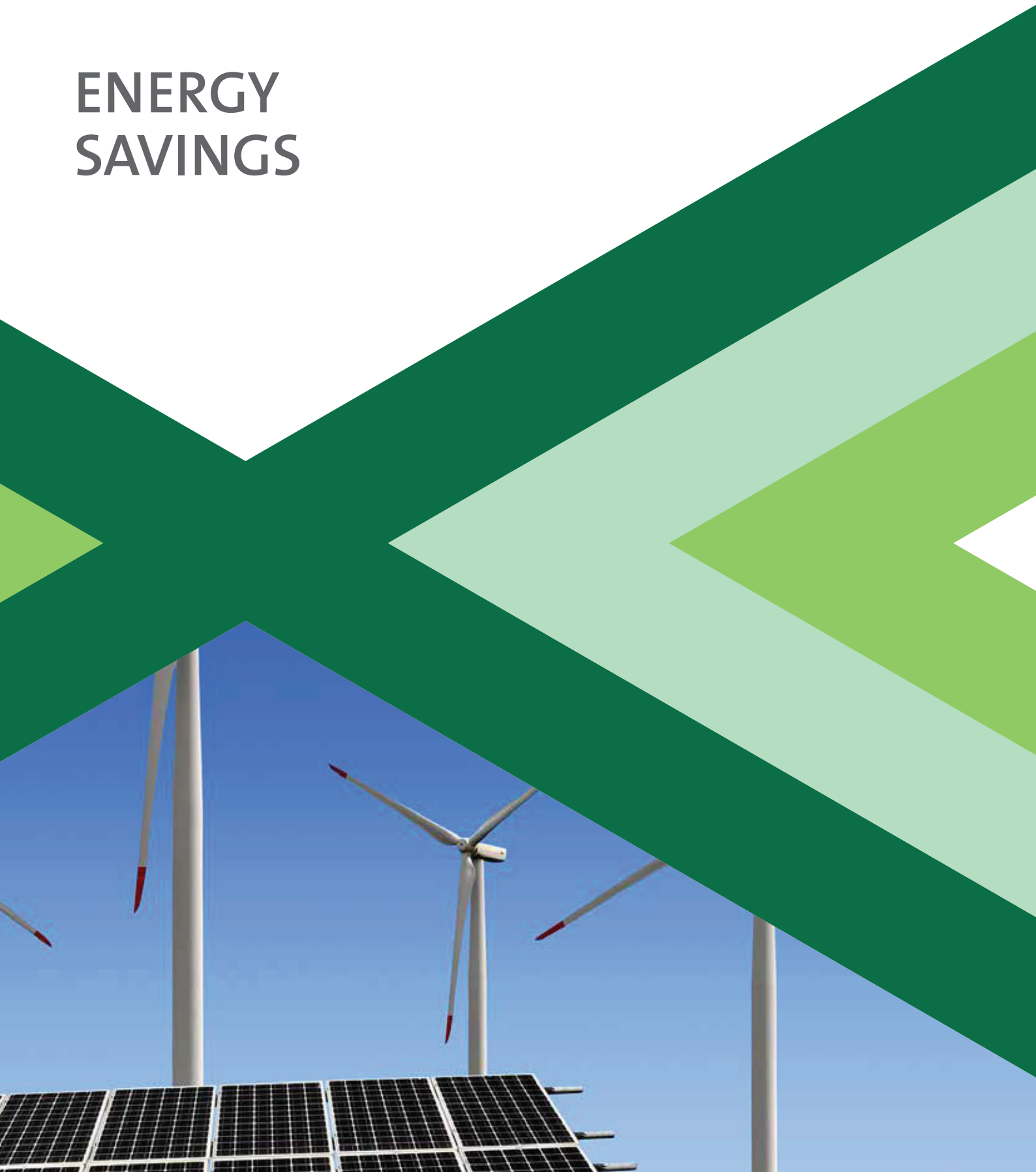




# ENERGY SAVINGS



## WHY TO INVEST IN ENERGY SAVINGS

### THREE REASONS TO INVEST IN THE SECTOR

#### 1 SAUDI ARABIA IS ONE OF THE LARGEST ENERGY CONSUMER WITH INCREASING ELECTRICITY TARIFFS



- Saudi Arabia ranks 3rd within the top 20 largest producers worldwide for energy consumption per capita
  - 8,954 Kwh per capita in 2018
  - >5% yearly consumption growth
- Electricity tariffs increased twice over the past 4 years
- Expected to still increase in the future
- Estimated \$ 20 Bn investment needed to meet increasing energy demand by 2020
- Lowering the energy demand, through energy efficiency projects, is crucial going forward to render electricity consumption sustainable

#### 2 GOVERNMENT COMMITMENT TO SUPPORT THE DEVELOPMENT OF THE ENERGY SAVINGS SECTOR



- Leveraging Saudi Energy Efficiency Center (SEEC) as the key entity and unique interface responsible for the whole energy efficiency sector
- Introducing new regulations (e.g., ESCO licensing, legal framework, incentives) and standards (e.g., measurements)
- Investing in human capital for building capabilities in the energy sector (e.g., certifications and trainings)
- Promoting public awareness campaign aimed at facilitating private investment in energy efficiency (e.g., showed interest of households in saving energy)

#### 3 SUPER ESCO ESTABLISHED TO FACILITATE THE PUBLIC BUILDINGS ENERGY SAVINGS

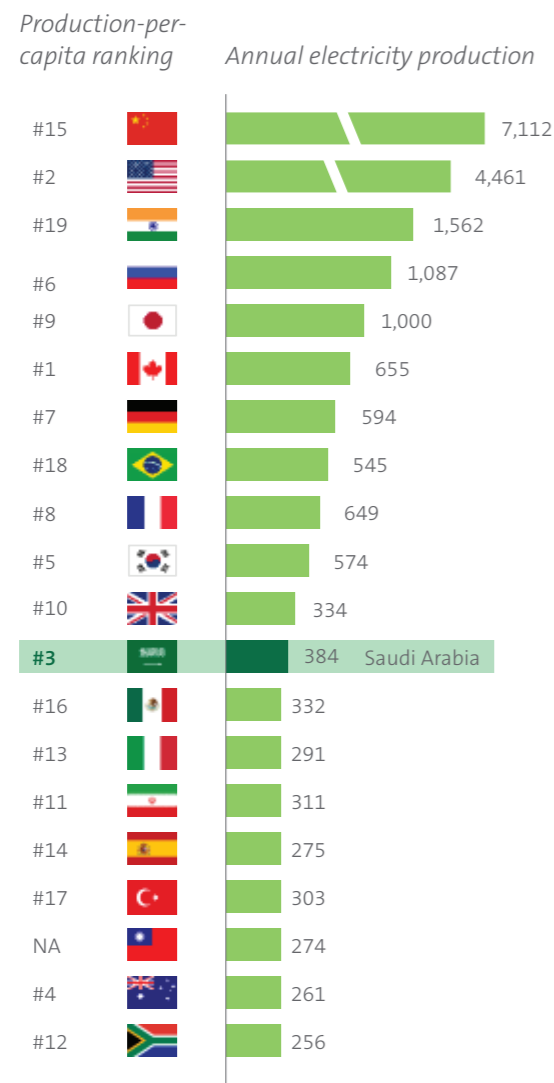


- Super ESCO, a newly-established company with approx. \$500 M capital, is responsible to support the development of energy projects in the public sector partnering with private investors (i.e., ESCOs)
  - Funding energy efficiency project development
  - Building capabilities of traditional energy services companies
- Plan is to manage the energy retrofit of government and public buildings
  - >260,000 facilities estimated across the whole country
  - >2M Street lights poles

# LARGE ENERGY CONSUMPTION

## SAUDI ARABIA RANKS 11TH WORLDWIDE FOR ANNUAL ELECTRICITY PRODUCTION

ANNUAL ELECTRICITY PRODUCTION (TWh) AND PRODUCTION-PER-CAPITA RANKING (#) WITHIN TOP 20 LARGEST PRODUCERS



# Ranking of production-per-capita within top 20 energy producers

## ENERGY PRODUCTION GREW AT 5% ANNUALLY UP TO 331 TWh IN 2016, EXPECTED TO CONTINUE AROUND 4%

HISTORICAL AND FORECASTED ENERGY PRODUCTION

Values in TWh



Note: 2019 values, TWh stands for TeraWatt-hours;  
 Source: British Petroleum Statistical Review of World Energy June 2019; British Petroleum Statistical Review of World Energy 2015 workbook; Workbook of historical data 1985-2013 on Electricity generation: Statistical review of world energy 2018

Source: King Abdullah Petroleum Studies and Research Center, British Petroleum Statistical Review of World Energy June 2019, Energy Information Administration, Team research and analysis

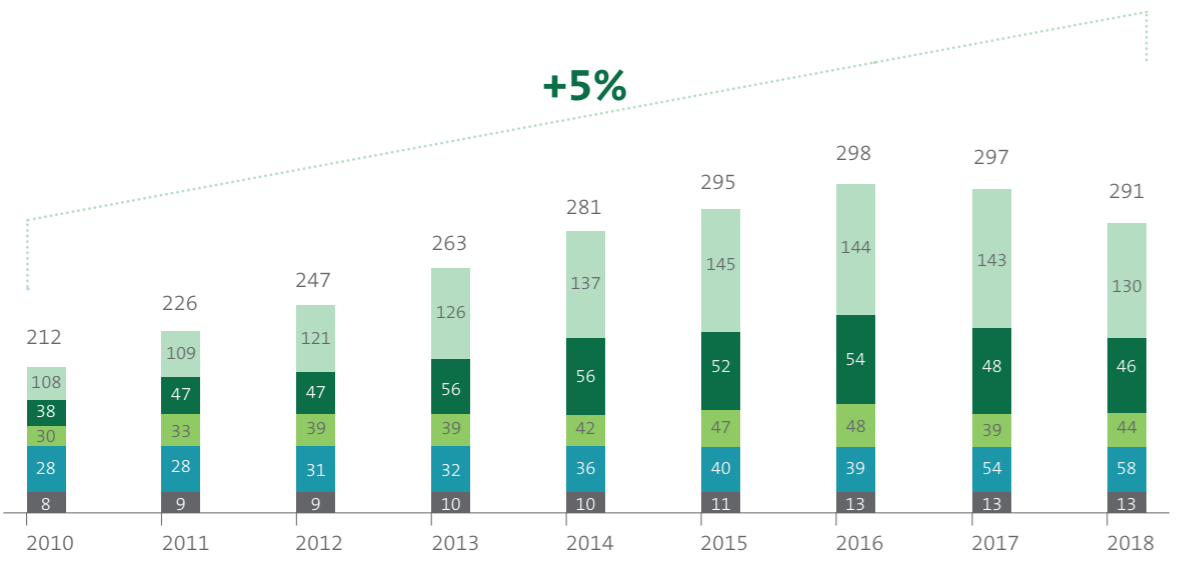
# LARGE ENERGY CONSUMPTION

ON THE DEMAND SIDE, ENERGY CONSUMPTION GREW AT 5% ANNUALLY UP TO 291 TWH IN 2018

## HISTORICAL ENERGY CONSUMPTION

Values in TWh

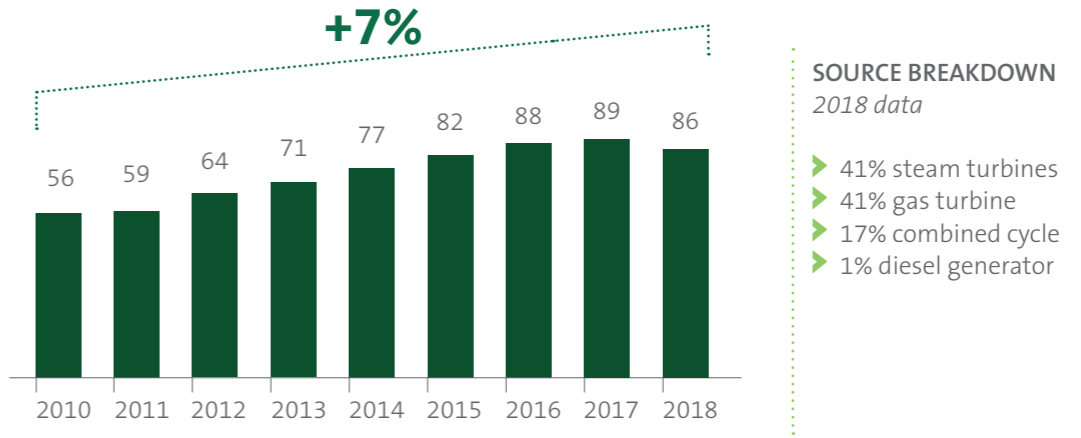
2010-2018 breakdown



- 43.6% Residential
- 15.7% Industrial
- 14.7% Commercial
- 19.4% Government
- 6.6% Others

ENERGY EFFICIENCY BECOMES CRUCIAL TO RENDER ENERGY PRODUCTION AND CONSUMPTION SUSTAINABLE

## LICENSED POWER CAPACITY, GROWING AT 7% ANNUALLY,...



- SOURCE BREAKDOWN 2018 data
- 41% steam turbines
  - 41% gas turbine
  - 17% combined cycle
  - 1% diesel generator

...MAKES ENERGY EFFICIENCY CRUCIAL FOR SUSTAINABILITY

*Serious commitment to develop energy efficiency policies for a sustainable development*

# LARGE ENERGY CONSUMPTION

# GOVERNMENT COMMITMENT

## POWER TARIFFS CHANGE: NEW FRAMEWORK INTRODUCED

### NEW FRAMEWORK INTRODUCED

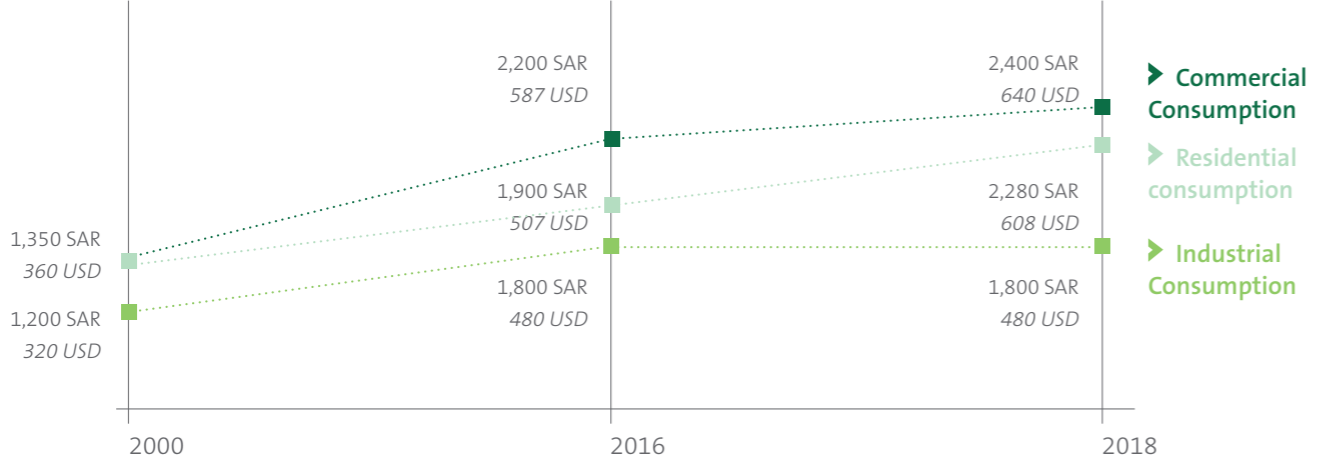
POWER TARIFFS REVISED IN JANUARY 2018  
(Halalah/KWh)

HALALAH /KWh	RESIDENTIAL	COMMERCIAL	AGRICULTURAL & CHARITIES	GOVERNMENTAL	INDUSTRIAL	PRIVATE*
0-6000	<b>18</b>	<b>20</b>	<b>16</b>			
				<b>32</b>	<b>18</b>	<b>21</b>
6000+	<b>30</b>	<b>30</b>	<b>20</b>			

### COMPARISON

2000 vs. 2016 vs. 2018

SIMULATION FOR A 10,000 KWH CONSUMER IN THREE DIFFERENT SCENARIOS



\* Private educational facilities and medical facilities

## GOVERNMENT COMMITMENT TO SUPPORT THE DEVELOPMENT OF THE ENERGY SAVINGS SECTOR

DEDICATED ENTITIES

REGULATIONS AND STANDARDS

PUBLIC AWARENESS



# GOVERNMENT COMMITMENT

# DEDICATED ENTITIES

## 1 DEDICATED ENTITIES



- Established dedicated entities aimed at developing the **Saudi energy efficiency sector**
  - Saudi Energy Efficiency Center
  - Super ESCO
  - ESCO committee

## 2 REGULATIONS AND STANDARDS



- **Introduced** new regulations and energy standards, when applicable
  - Kingdom M&V user guide
  - ESCO licensing requirements
  - Control of licensed ESCO document

## 3 PUBLIC AWARENESS



- **Developed** human capital initiatives and public awareness campaigns
  - Households and firms to heavily invest in energy applications and solutions

# SAUDI ENERGY EFFICIENCY CENTER (SEEC) AS UNIQUE ENTITY RESPONSIBLE FOR THE ENERGY EFFICIENCY

## RAISE RATIONALIZATION AWARENESS AND ENHANCE ENERGY CONSUMPTION EFFICIENCY IN THE COUNTRY

- Unifying efforts of governmental and non-governmental agencies
- Supporting and preserving the national wealth of energy resources
- Contributing in the development of the national economy
- Achieving the lowest levels of possible consumption



## KEY AREAS WITHIN THE MANDATE

### 1

Design and provide mechanisms to address the **public** buildings energy efficiency e.g., Super ESCO initiative

### 2

Provide regulatory **framework and licensing**; evaluation criteria for certification

- Background and credentials
- Technical capabilities
- Staff capacity
- Financial robustness

### 3

Invest in **human capital** e.g., certifications and trainings

### 4

Set **measurement and verification** plans to assess energy efficiency results

## REGULATIONS AND STANDARDS

### NEW REGULATIONS AND STANDARDS TO PROVIDE CLEAR GUIDELINES ON ENERGY EFFICIENCY PROGRAMS

#### REGULATIONS: LICENSING, LEGAL FRAMEWORK, INCENTIVES

LICENSING	<ul style="list-style-type: none"> <li>▶ Three step process for ESCOs licensing             <ul style="list-style-type: none"> <li>- Application (different type of licenses)</li> <li>- Recommendation (technical review)</li> <li>- Endorsement (final decision)</li> </ul> </li> </ul>
LEGAL FRAMEWORK	<ul style="list-style-type: none"> <li>▶ Defined by three guidelines             <ul style="list-style-type: none"> <li>- Kingdom M&amp;V user guide</li> <li>- Company types (ESCO, audit, engineering)</li> <li>- Control of licensed ESCO documents</li> </ul> </li> </ul>
INCENTIVES	<ul style="list-style-type: none"> <li>▶ Preset by guidelines and a royal mandate             <ul style="list-style-type: none"> <li>- Royal decree mandates retrofitting public entities through Super ESCO</li> <li>- Industrial energy efficiency framework</li> <li>- ESCO license gives access to the entire market of ESCOs in the Kingdom (public, commercial, industrial, residential)</li> </ul> </li> </ul>

#### STANDARDS: MEASUREMENT AND VERIFICATION

▶ M&V process is a critical enabler to the success of guaranteed savings contracts. **Three key benefits:**

**1**

Validated savings:

- Confirming project energy savings
- Validating guaranteed performance
- Facilitating persistence of savings

**2**

Minimized disputes:

- Bringing visibility to financing entities
- Providing a risk management tool to funders

**3**

Ensured clarity

- Unifying definition, terminology and procedures
- Improving communication and understanding

## PUBLIC AWARENESS

### HUMAN CAPITAL DEVELOPMENT AND PUBLIC AWARENESS ARE KEY ENABLERS FOR ENERGY EFFICIENCY

#### HUMAN CAPITAL DEVELOPMENT

VOCATIONAL AND TECHNICAL TRAINING	<ul style="list-style-type: none"> <li>▶ Technical and Vocational Training Corporation (i.e., College of Excellence, Saudi Skills Standards) course development</li> <li>▶ National power academy collaboration</li> </ul>
COLLABORATIONS WITH UNIVERSITIES	<ul style="list-style-type: none"> <li>▶ University course development (e.g., King Saud University, King Fahd University of Petroleum and Minerals)</li> <li>▶ Energy efficiency center collaboration</li> </ul>
PROFESSIONAL TRAINING	<ul style="list-style-type: none"> <li>▶ Collaboration with industrial players (e.g., Saudi Electricity Company, SABIC, Aramco) to offer international certification (e.g., energy management, energy audit, energy measurement and verification)</li> </ul>

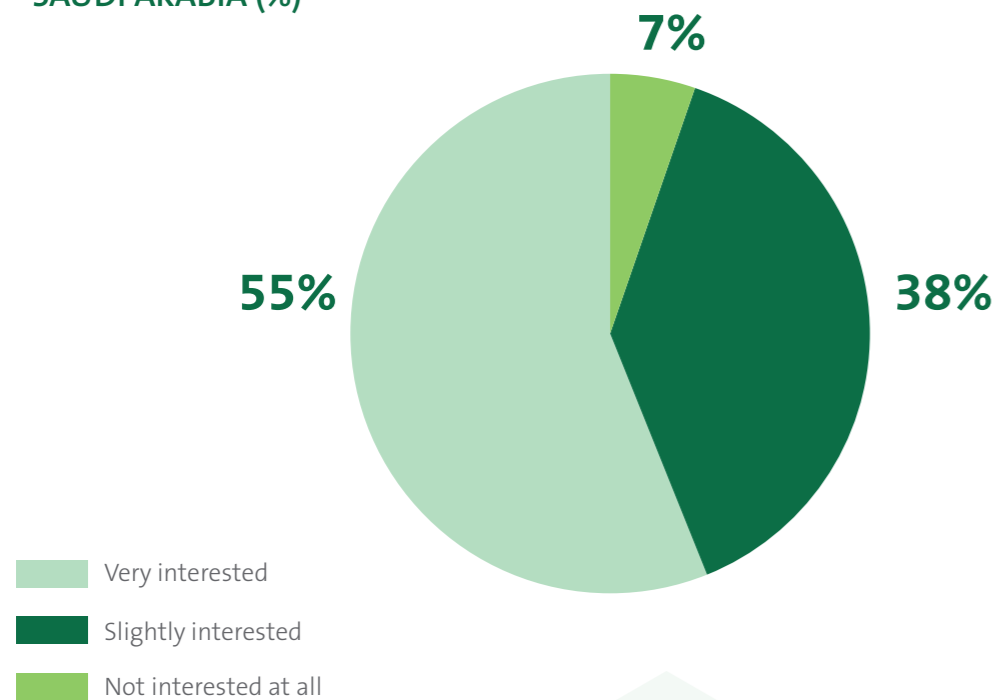
#### PUBLIC AWARENESS

MEDIA PLAN	<ul style="list-style-type: none"> <li>▶ Developed media content</li> <li>▶ Identified media channels with optimal outreach (e.g., TV talk shows, social media, publications)</li> <li>▶ Planned frequency of media appearances</li> </ul>
CONFERENCES AND SEMINARS	<ul style="list-style-type: none"> <li>▶ Aimed at attracting traditional ESCOs into the Kingdom through             <ul style="list-style-type: none"> <li>- Participation in local and international industry conferences and seminars</li> <li>- Conducting workshops to encourage capable companies into becoming licensed Saudi ESCOs</li> </ul> </li> </ul>

## PUBLIC AWARENESS

### PEOPLE SHOW INTEREST TO SAVE ENERGY

NUMBER OF HOUSEHOLDS INTERESTED IN REDUCING ELECTRIC POWER IN SAUDI ARABIA (%)



**Approx. 93% of Saudi households show interest to save on their energy consumption**

Source: General Authority of Statistics Household Energy Survey 2019

## SUPER ESCO ESTABLISHED

### SAUDI SUPER ESCO'S AREAS OF MANDATE

#### SUPER ESCO'S OBJECTIVE

*Build the Saudi ESCO market fostering the development of the energy service sector in Saudi Arabia*

- *Funding energy efficiency projects*
- *Building capabilities of traditional ESCOs*

#### ENERGY BUILDING RETROFITS



- Government and public facilities as initial scope
  - 70% of overall projects
- >260,000 facilities estimated across the whole country
- >2M Street lights poles

#### ENERGY ADVISORY SERVICES



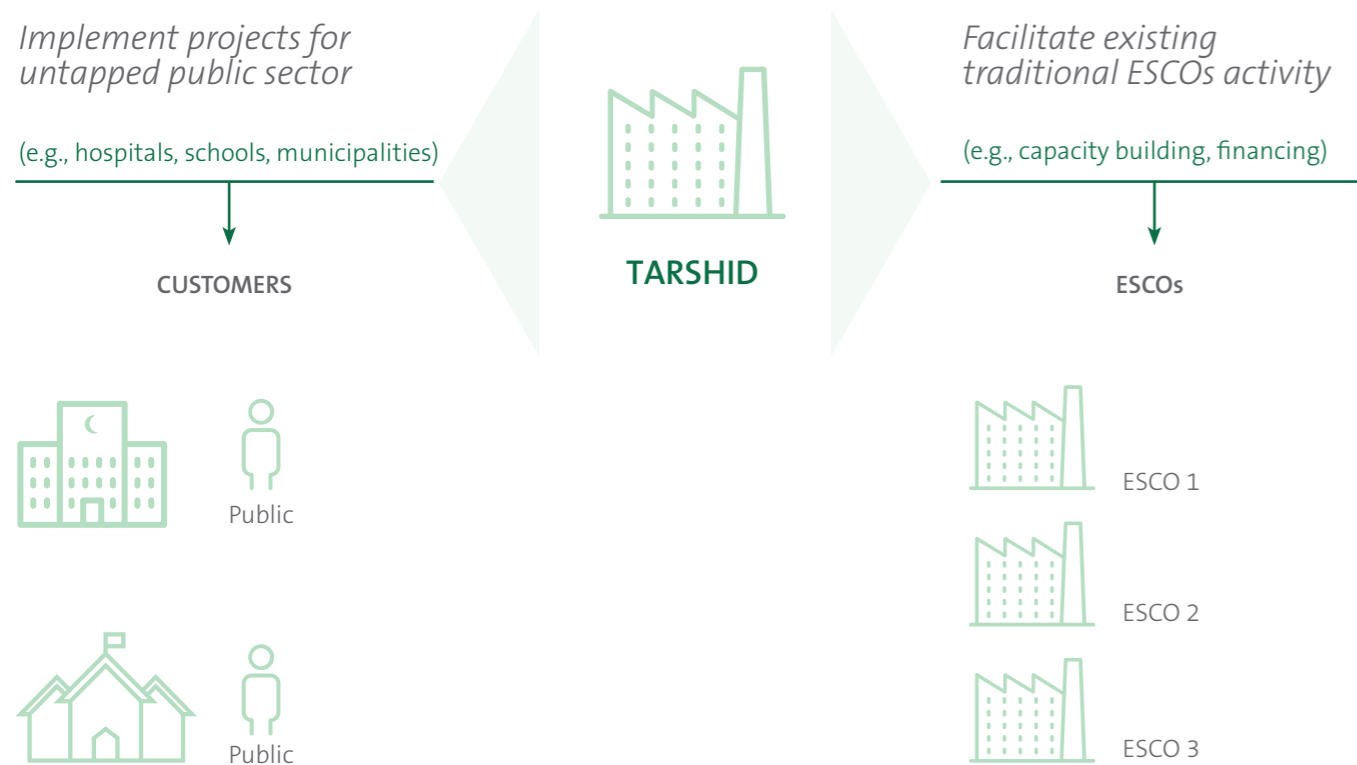
- Landscaping phase
  - Still under discussion/evaluation
- Consulting for audit, demand response, renewables, etc.



## SUPER ESCO ESTABLISHED

## ENERGY RETROFITS

### SAUDI SUPER ESCO INTRODUCED AS KEY INTERFACE BETWEEN CUSTOMERS AND TRADITIONAL ESCOs



### ENERGY BUILDING RETROFITS

UP TO 30% savings after undergoing refit to increase energy efficiency

#### ENERGY RETROFITS



- Construction process aimed at renovating existing buildings with the aim of upgrading the energy performance
  - Improving energy efficiency, decreasing the equipment power demand
  - For new buildings, advisory services (e.g., energy procurement, renewables)

Source: Saudi Arabia's Vision for 2030; The Saudi Arabia's Public Investment Fund Program; <https://www.theguardian.com/environment/2012/jun/08/energy-efficiency-carbon-savings>; [https://ipfs.io/ipfs/QmXoyvizjW3WknFijnKlWHCnL72vedxjQkDDP1mXWo6uco/wiki/Deep\\_energy\\_retrofit.html](https://ipfs.io/ipfs/QmXoyvizjW3WknFijnKlWHCnL72vedxjQkDDP1mXWo6uco/wiki/Deep_energy_retrofit.html);

# ABOUT SAUDI GENERAL INVESTMENT AUTHORITY

**Saudi General Investment Authority** is the Kingdom's investment promotion agency. Our priorities are to attract and develop foreign investment, enhance the nation's investment climate, increase the ease of doing business, and eliminate obstacles from investors' journey.

To discover the countless opportunities, across major economic sectors, that Saudi Arabia has to offer:

## CONTACT US NOW

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