

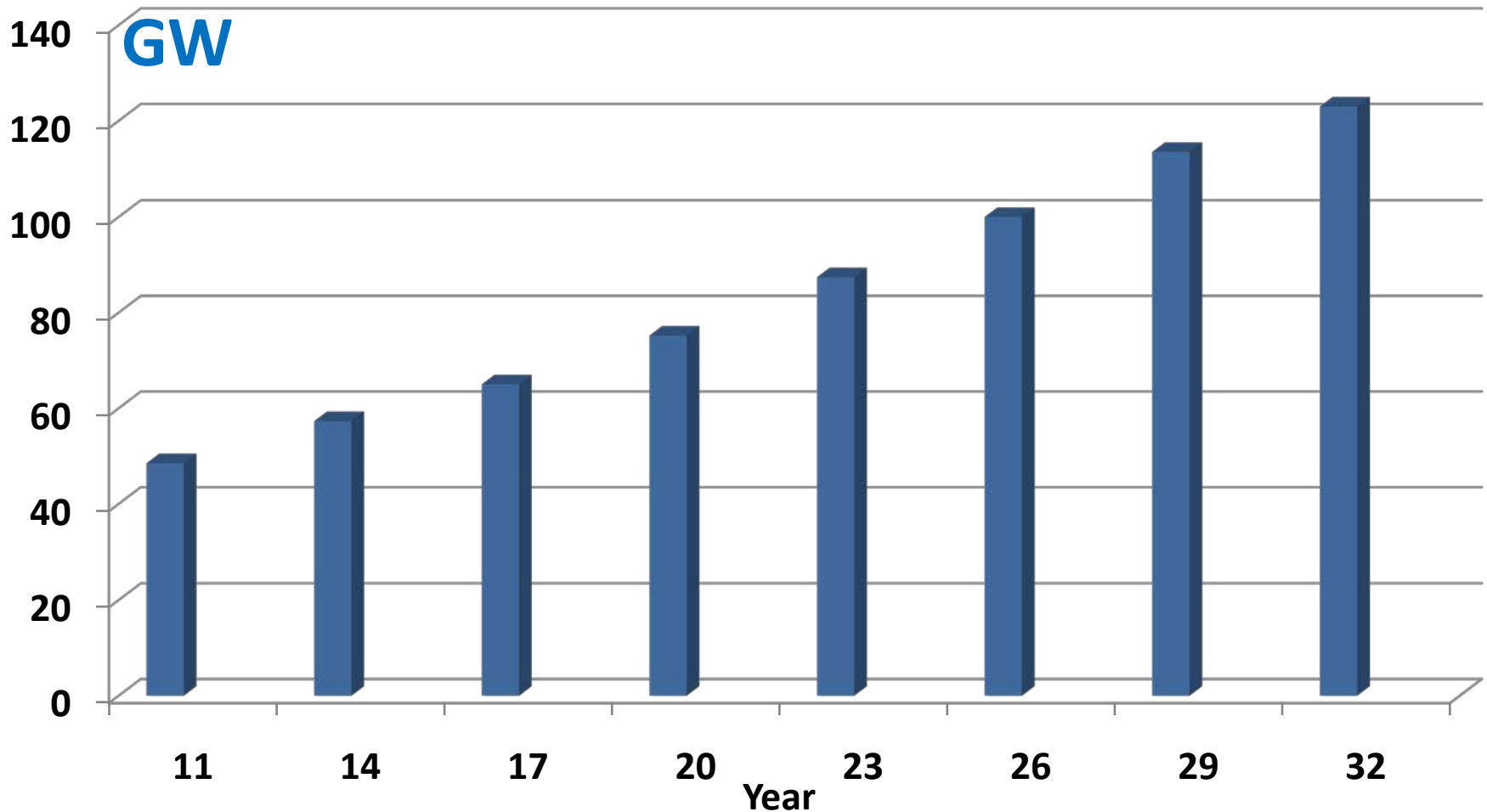


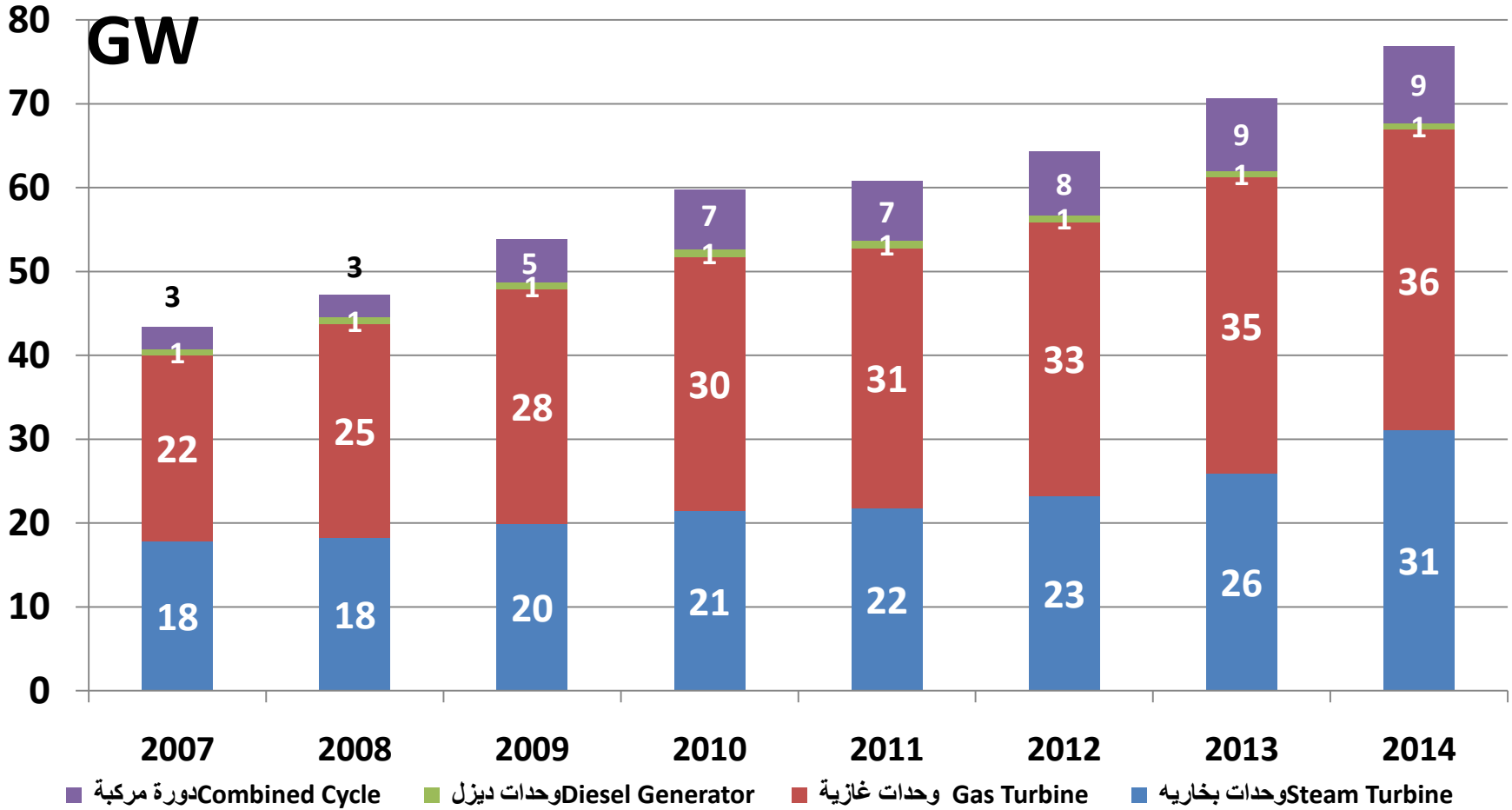
Impact of Energy Efficiency And DSM Programs on Fuel Mix in Saudi Arabia

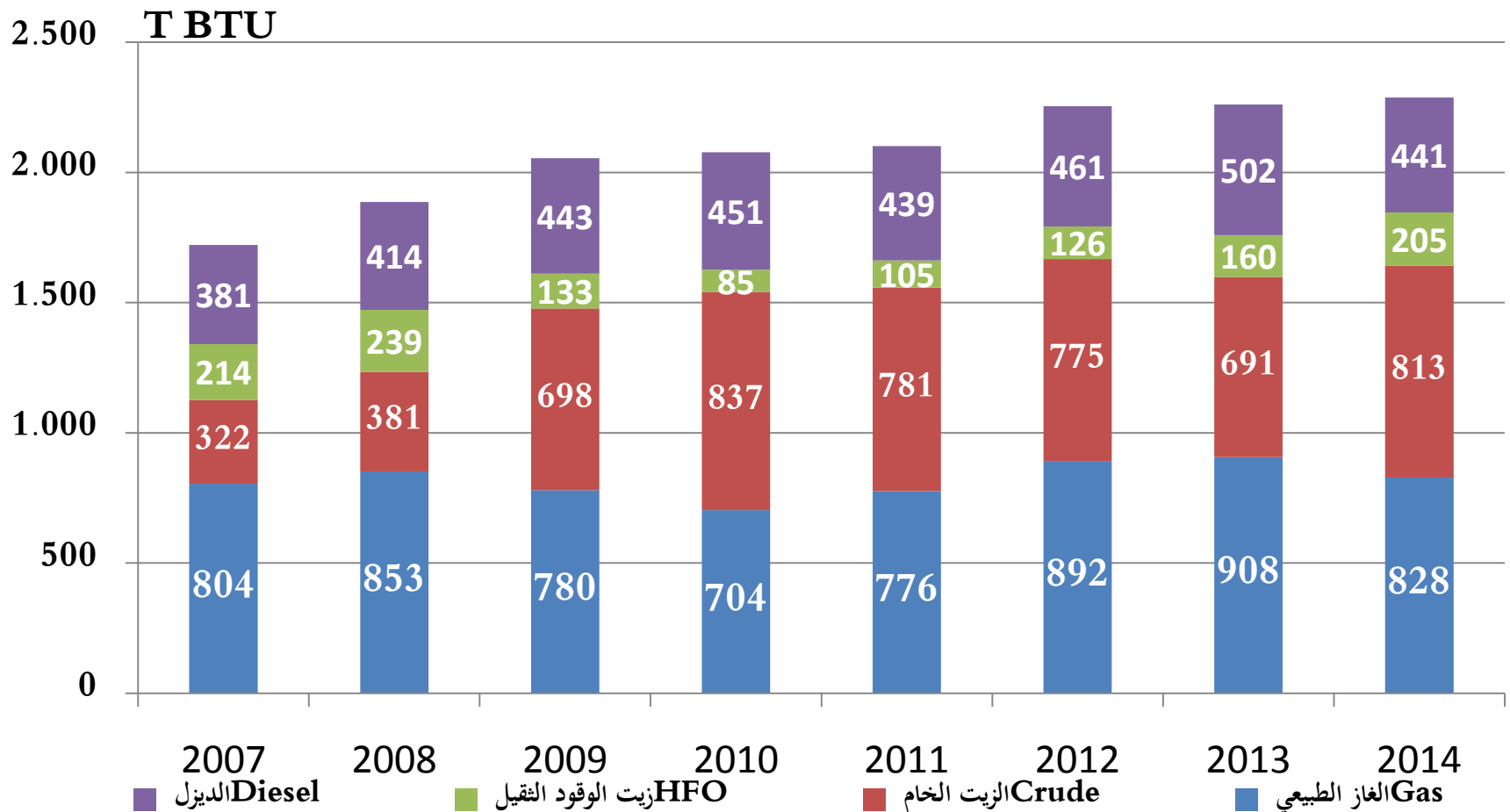
Abdullah M. Al-Shehri

ECRA

KSA Peak Demand Forecast







Increasing Drain on Oil Resources

Current oil consumption for power generation:

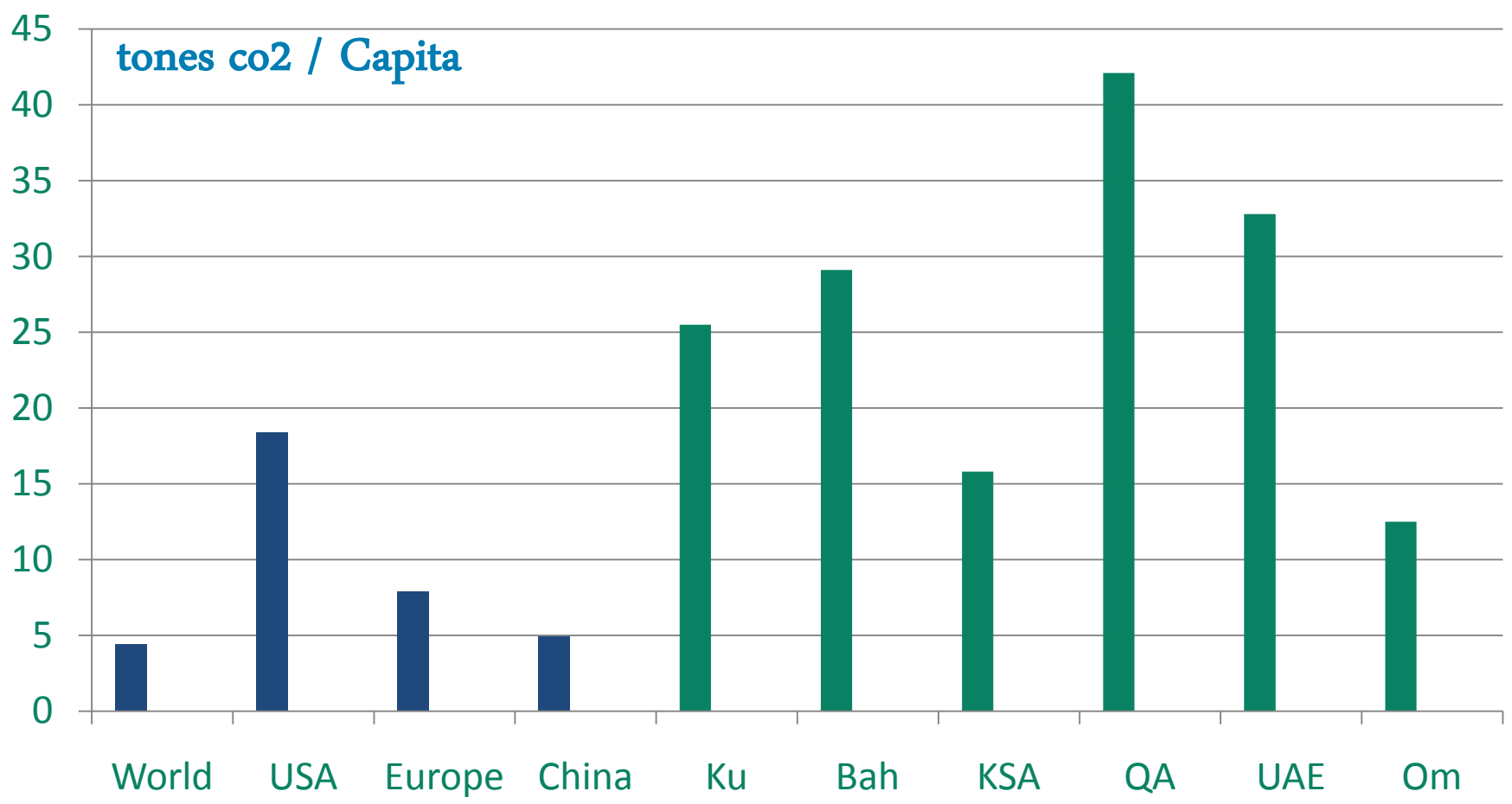
**270 million barrels per year
(10% of current production)
(= US\$ 5.4 Billion)**

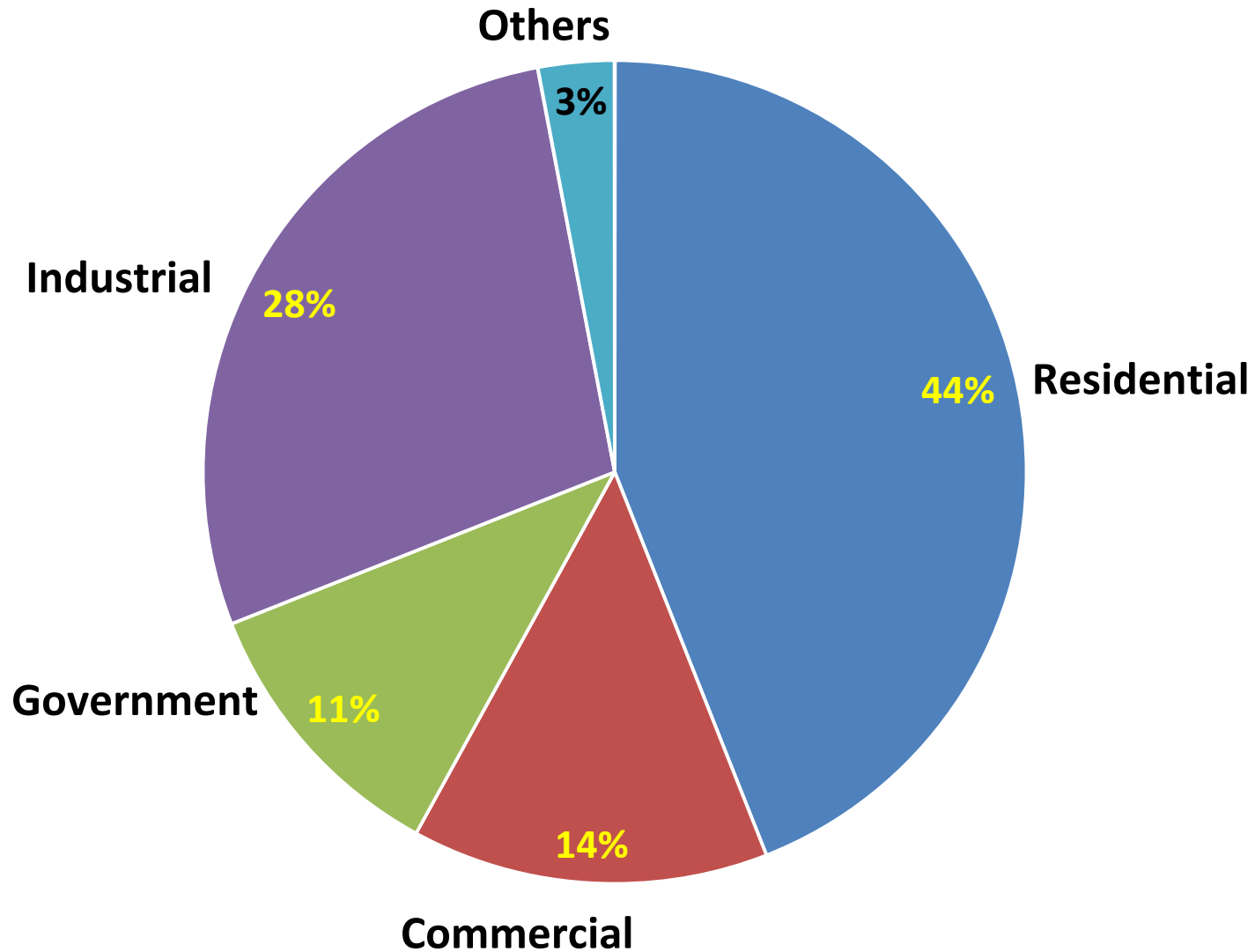
Rising to:

**430 million barrels by 2020
(15% of current production)**

**850 million barrels by 2030
(30% of current production)**

CO2 Emissions in 2008

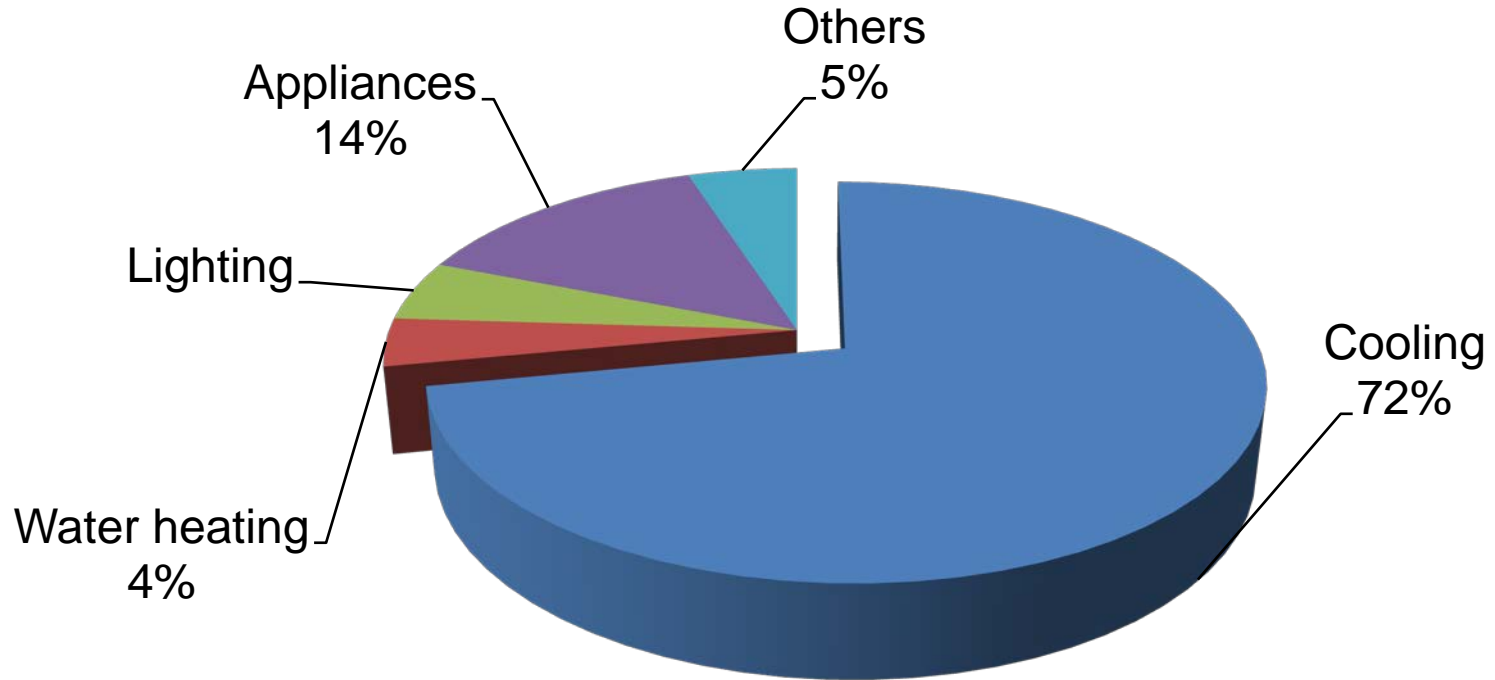




Focus Area :

Buildings and A/C

- Over 70% of summer peak demand is from AC



Residential consumption

- 1. Demand Side Efficiency**
- 2. Supply Side Efficiency**
- 3. Introduction of Renewables**
- 4. Interconnections**

Energy Conservation and DSM

Programs

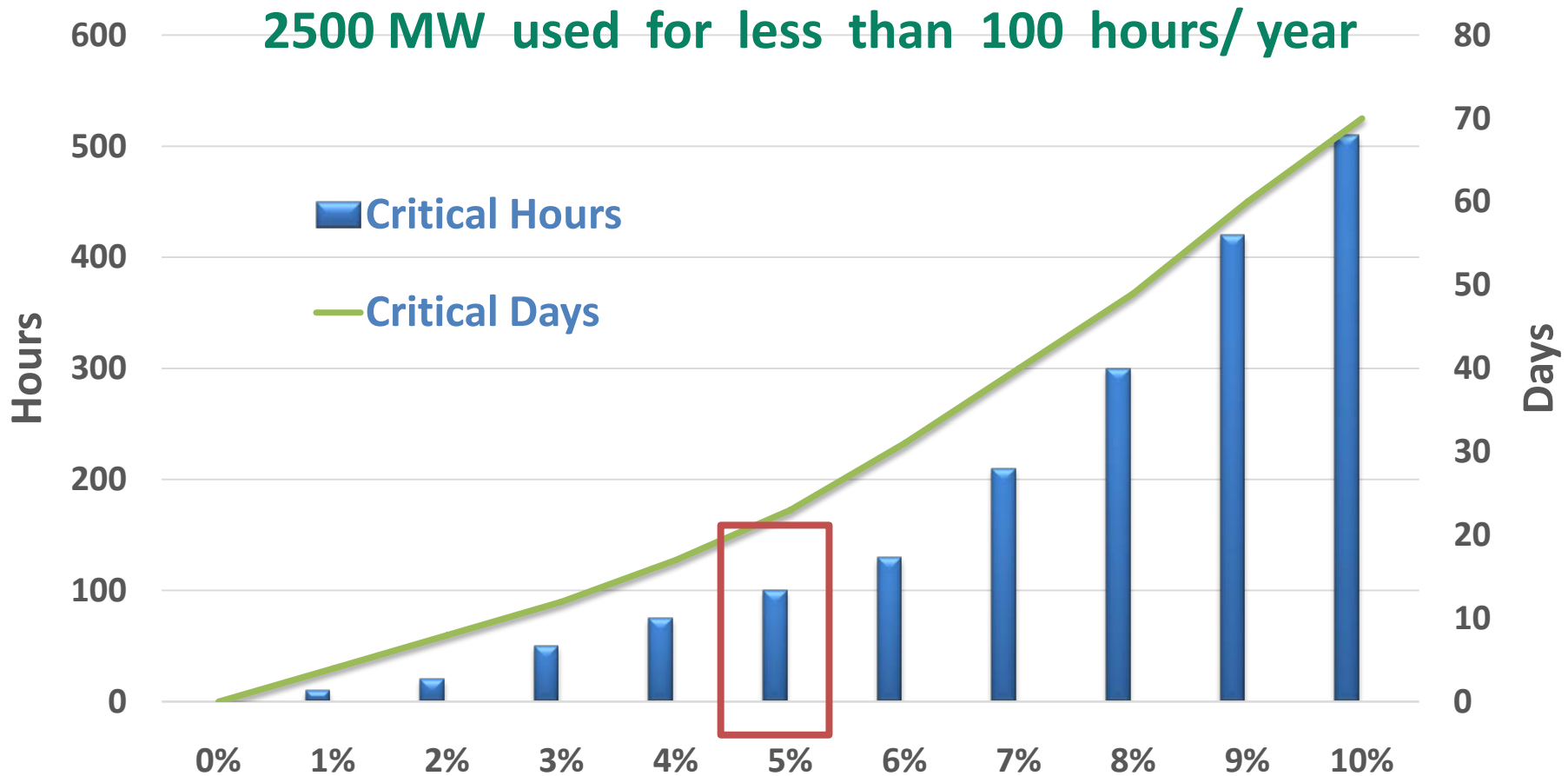


Vision & Targets

- Reduce peak demand by 14% by 2025
- Reduce energy consumption by 8% by 2025
- Financial benefits: Total net benefit over 20 years NPV:
 - US\$ 32 billion at oil price (\$60 / barrel)
- **Saving in oil consumption:**
 - 175 million barrels (average of 17.5 million barrels per year)

Note: net benefit based on NPV over 20 years at 10% DCF
Domestic fuel price: \$5/bbl, shadow fuel price \$25/bbl

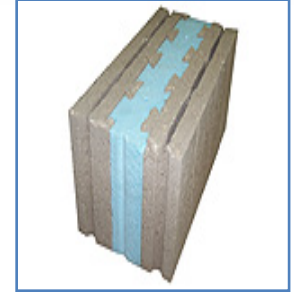
Demand Side Policies: DSM Programs



● 6 priority programs

EE Programs

1. Replacement of old A/C's
2. New buildings efficiency measures (A/C's and insulation)



LM/DR Programmes

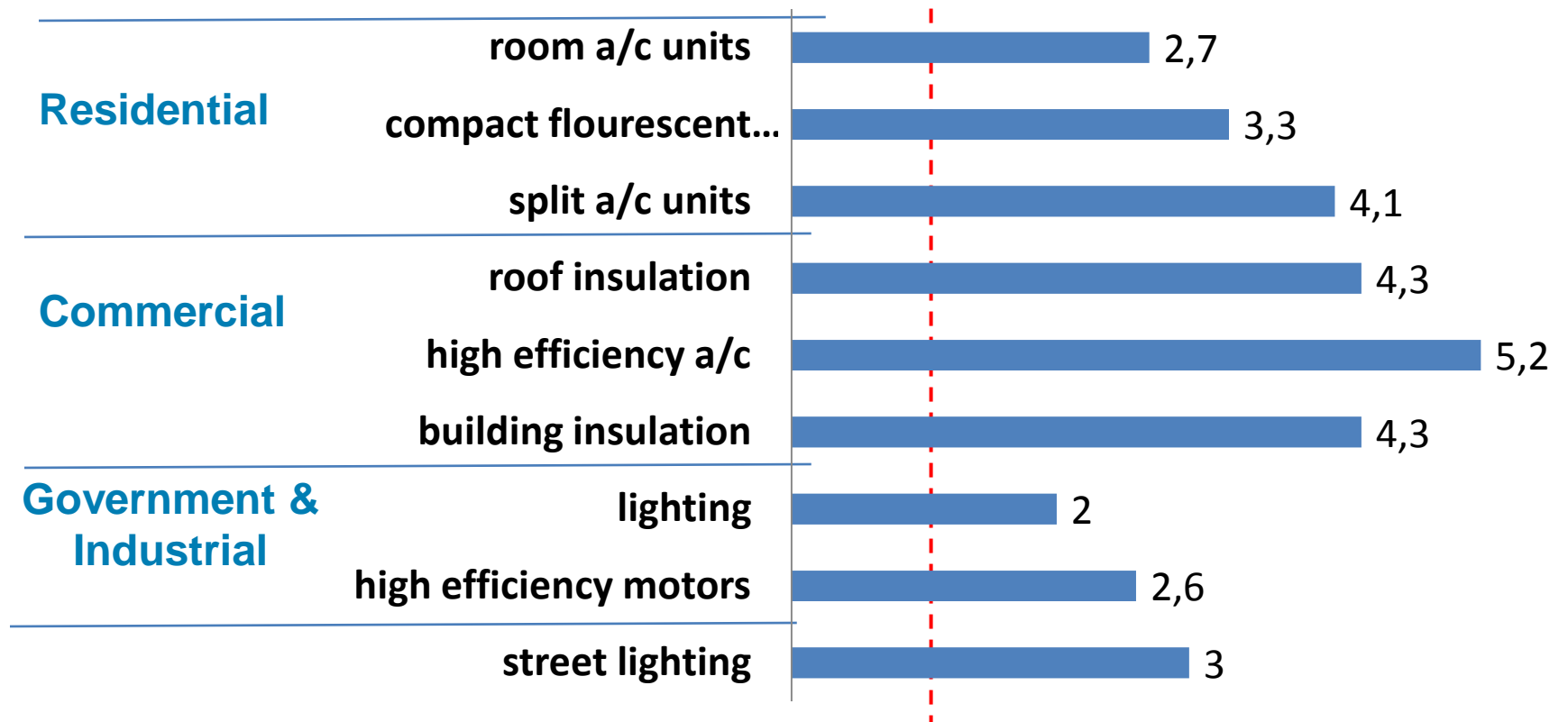
3. Time of Use Tariff
4. Direct load control
5. Interruptible tariffs
6. Curtailable load management



(tariff discounts and enrolment payments)

Cost – Benefit of Efficiency Measures

Benefit - cost ratios



1.0 = "break-even"

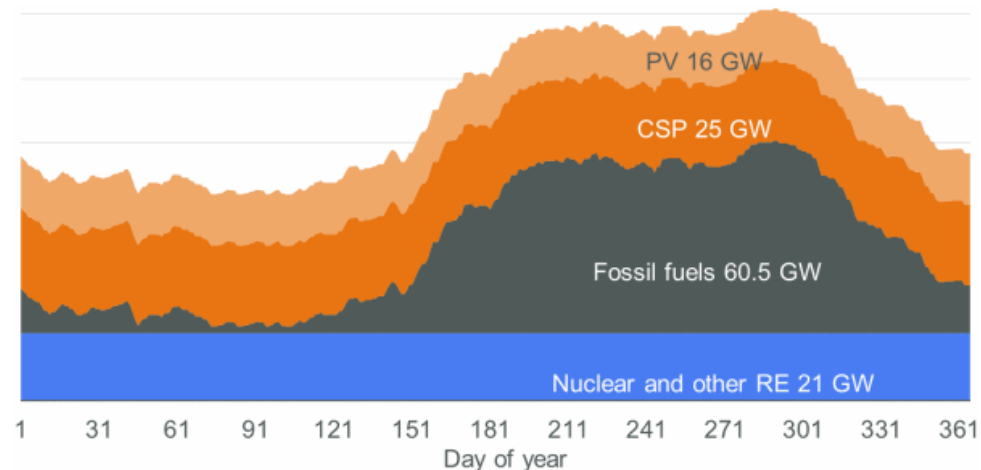
- Enhancing Efficiency
- Diversifying Sources
- Introducing Nuclear Energy
- Introducing Renewable Energy

- Electricity Law mandates that all plants built on coasts to be cogeneration
- Converting Simple Cycle to Combined Cycles
- Economic Dispatching of the generation units
- Compliance with environmental requirements

- Saudi Aramco announced more Gas availability to Utilities.
- Selection of efficient technologies :
 - Combined Cycles
 - High Efficient Boilers (Super/ultra critical)
 - Tri-generation

Introduction of Renewable and Nuclear energy

- KA - CARE Plan
 - 16 GW PV
 - 25 GW CSP
 - 21 GW Nuclear



- Internal Integration
- GCC Interconnection
- Egypt Interconnection
- Other Interconnections

- Free Fuel for Export
- Diversify resources
- Develop Local Knowhow capacity
- Improve efficiency
- Reduce subsidy
- Encourage private sector participation
- Introduce huge investments opportunities
- Reduce emissions.

THANK YOU