



# RAPID

The Change We Seek



HIGHER POPULATION COUNCIL

Photos (cover, top-bottom): Studio Robina, ICHe, Jennifer Hayes, ICHe

# Population Growth & Its Impact on Energy

**By the Higher Population Council**

# Outline

- 1** Population Characteristics
- 2** Population Projections
- 3** Energy Status
- 4** Population Growth Impacts on Energy
- 5** Actions Required



Photo by Moheemad Khawaja

# Current Situation

## Population Characteristics

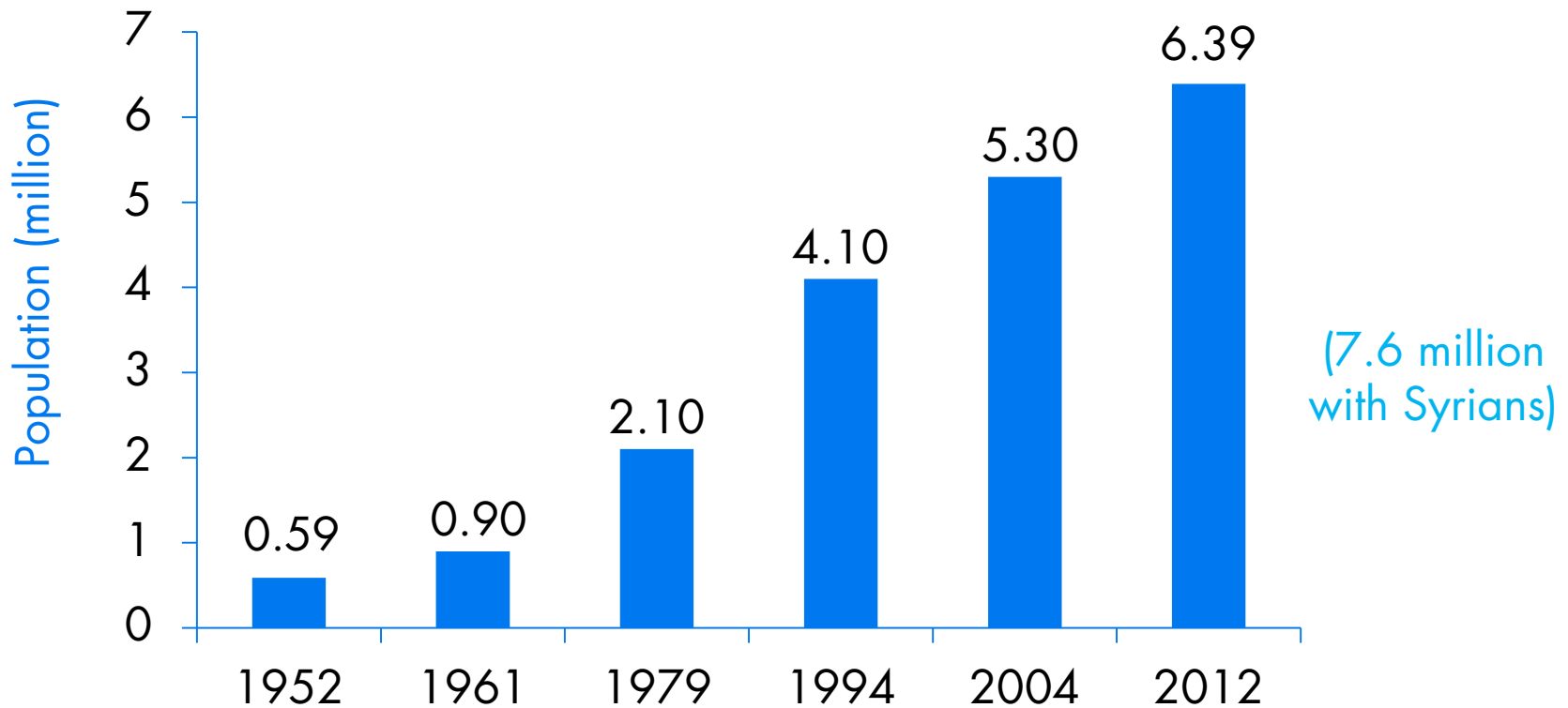
<b>Population (million) (2012)</b>	<b>6.4</b>
<b>Births per Woman (2012)</b>	<b>3.5</b>
<b>Crude Birth Rate per 1000 (2012)</b>	<b>27.2</b>
<b>Crude Death Rate per 1000 (2012)</b>	<b>7.0</b>
<b>Natural Growth Rate % (2012)</b>	<b>2.0</b>
<b>Life Expectancy (yrs.)</b>	
<b>Males</b>	<b>71.6</b>
<b>Females</b>	<b>74.4</b>

Source: Department of Statistics, Jordan Statistical Yearbook 2011

# 6.4 Million People

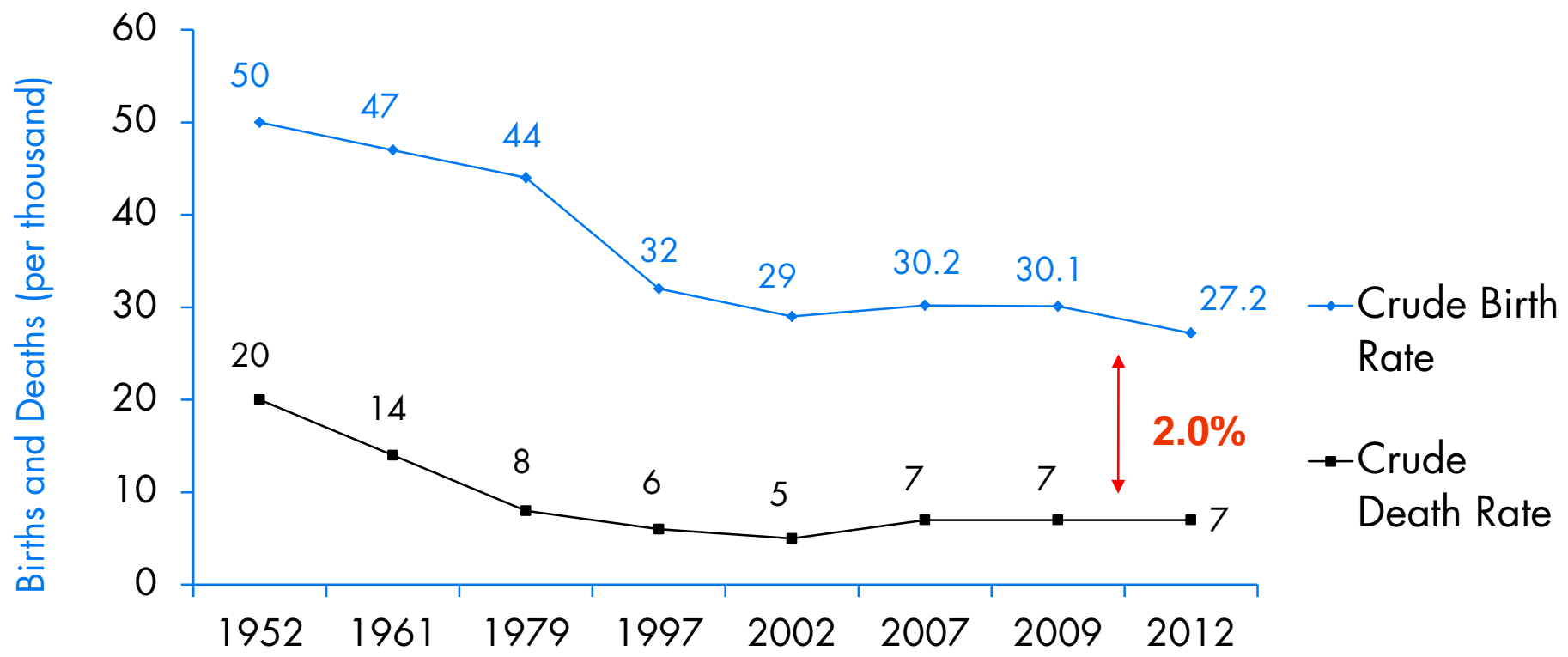
## Historic Population Growth

Population has increased tenfold in six decades



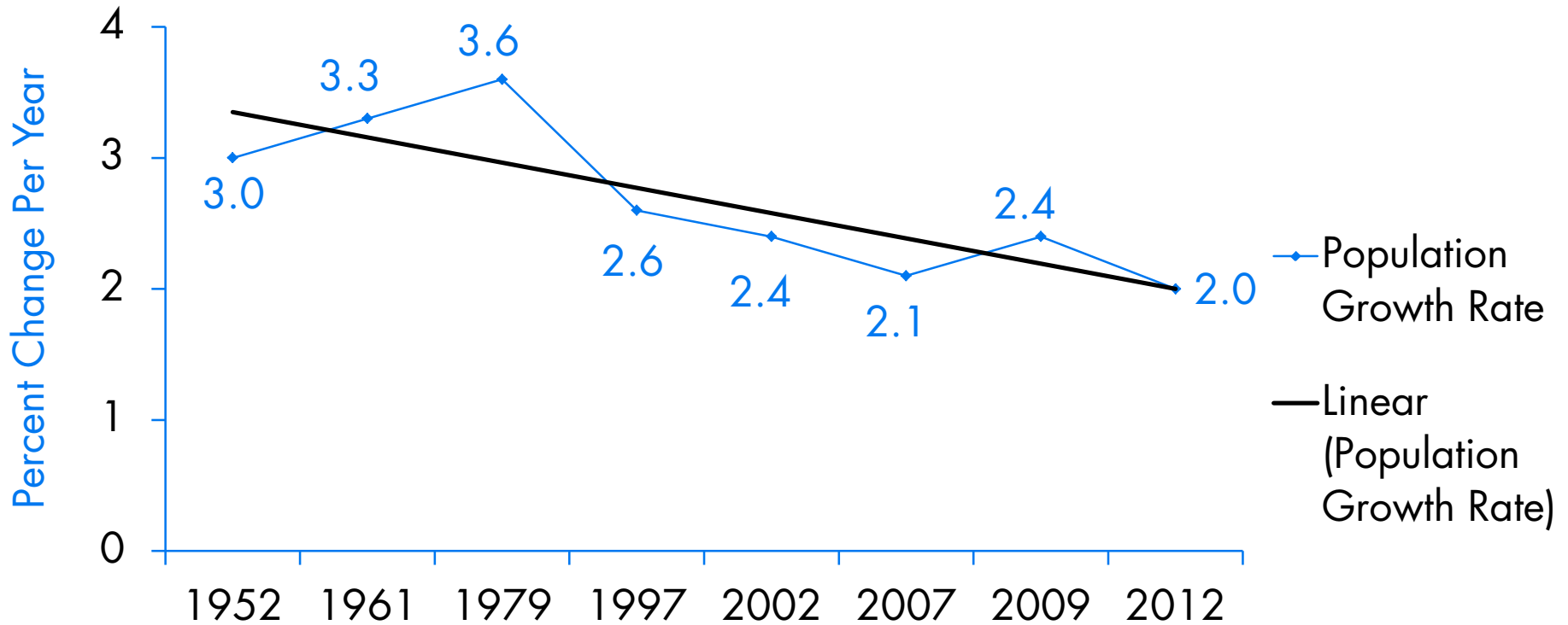
# Birth and Death Rates

## Trend over time



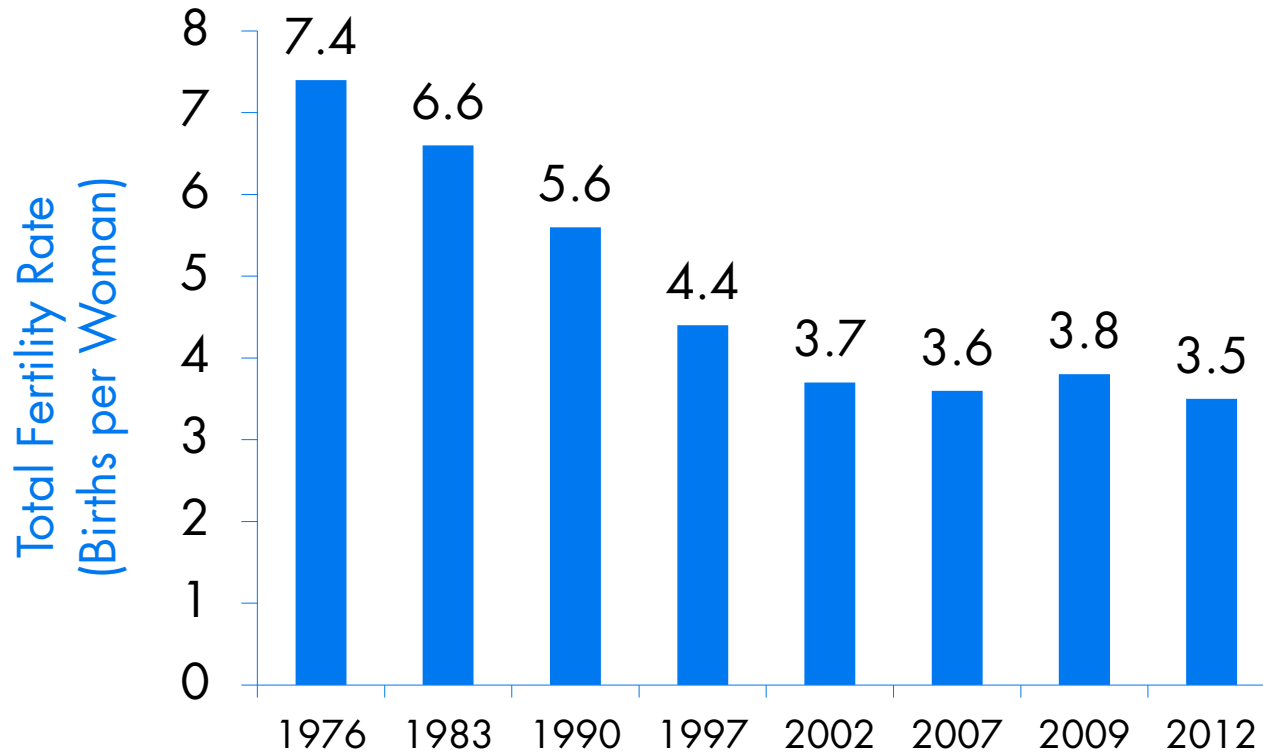
# Rate of Natural Increase (%)

Trend over time



# Total Fertility Rate

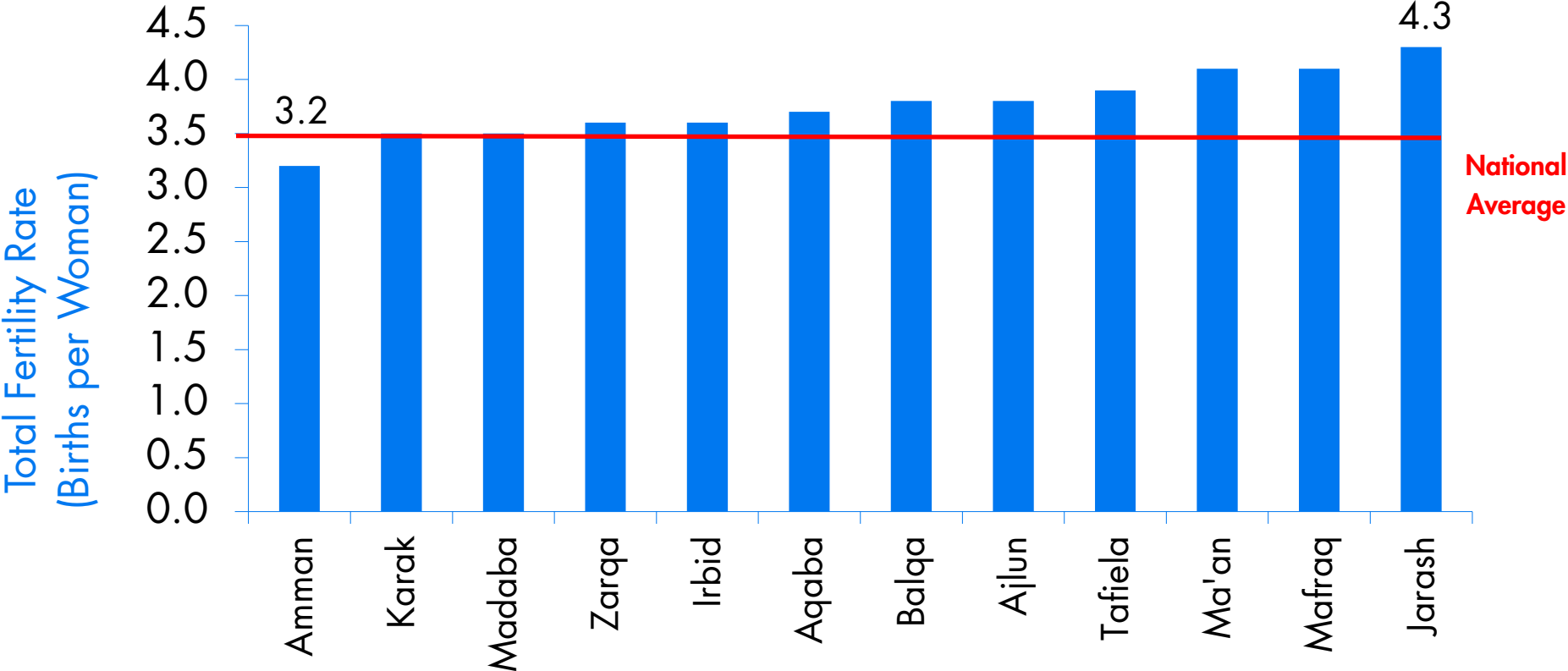
Relatively constant since 2002





# TFR by Governorate 2012

High rate throughout Jordan



Source: DOS, Jordan Demographic and Health Surveys 2012, preliminary results

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# Population Scenarios

## Scenario 1: Current Fertility

- TFR constant at 3.5

## Scenario 2: Reduced Fertility

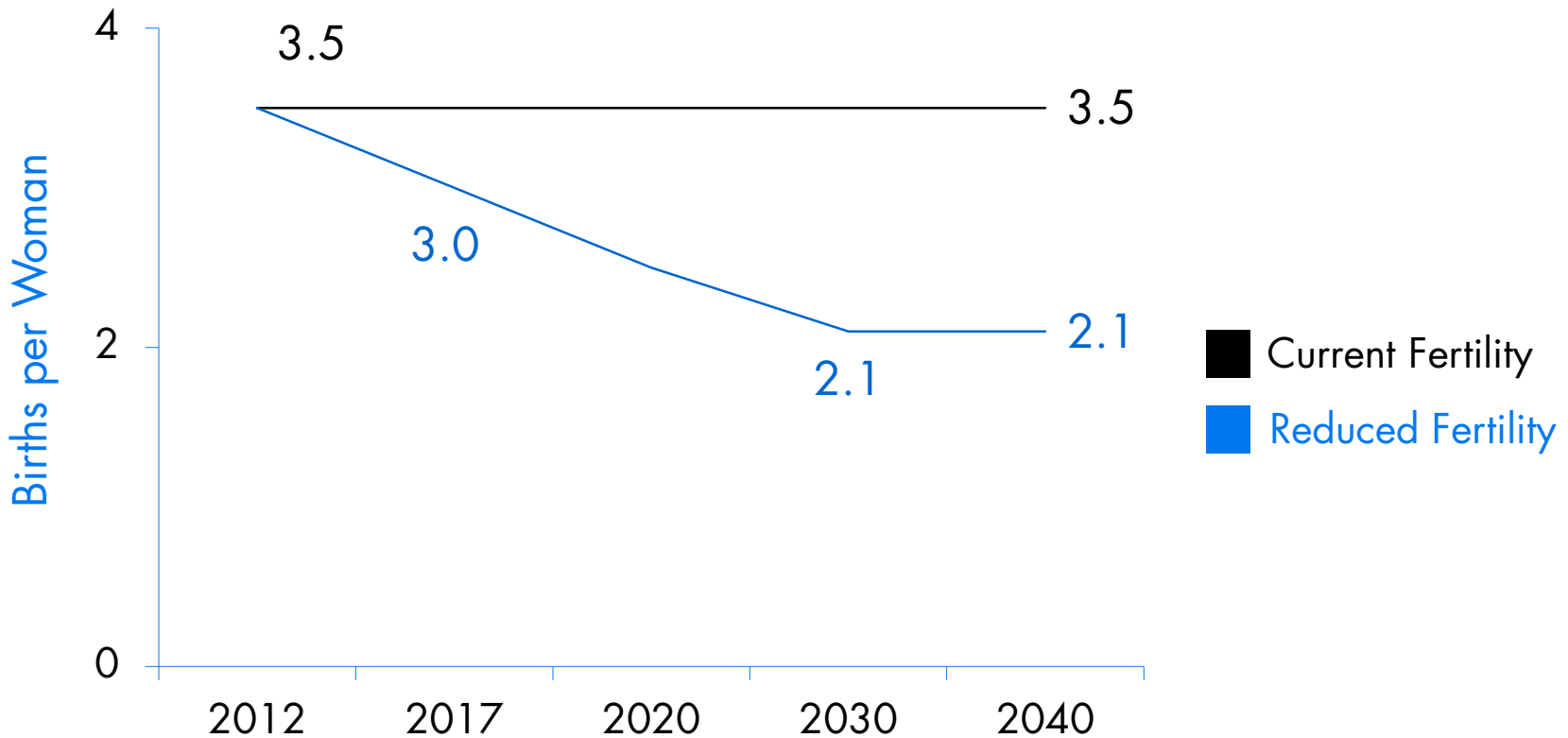
- TFR from 3.5 in 2012 to 3.0 in 2017 and to 2.1 in 2030

## Other Assumptions:

- For both scenarios, TFR is constant from 2030–2040
- Life expectancy increases from 2012–2017 and remains constant thereafter
- Net international migration is zero

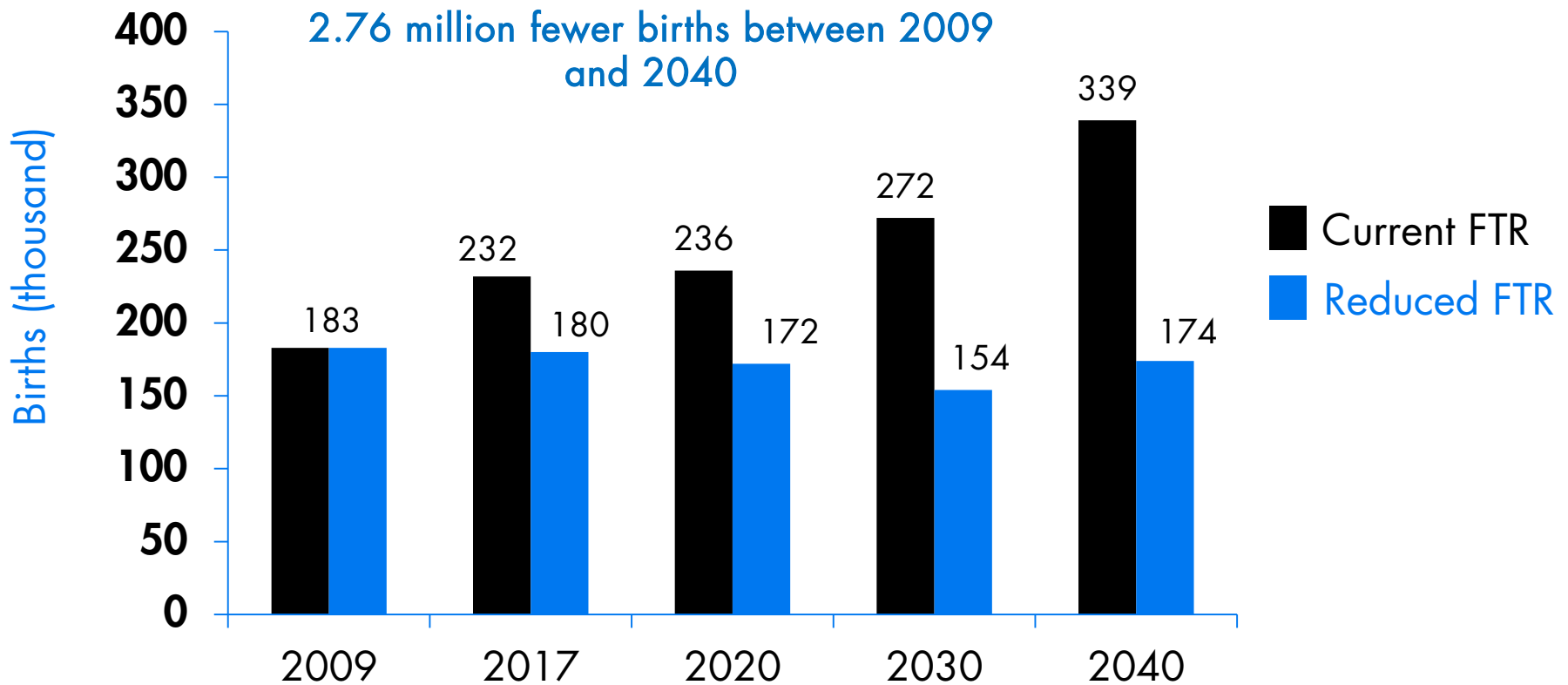
# Fertility Projections' Assumptions

## Current versus declining fertility rate



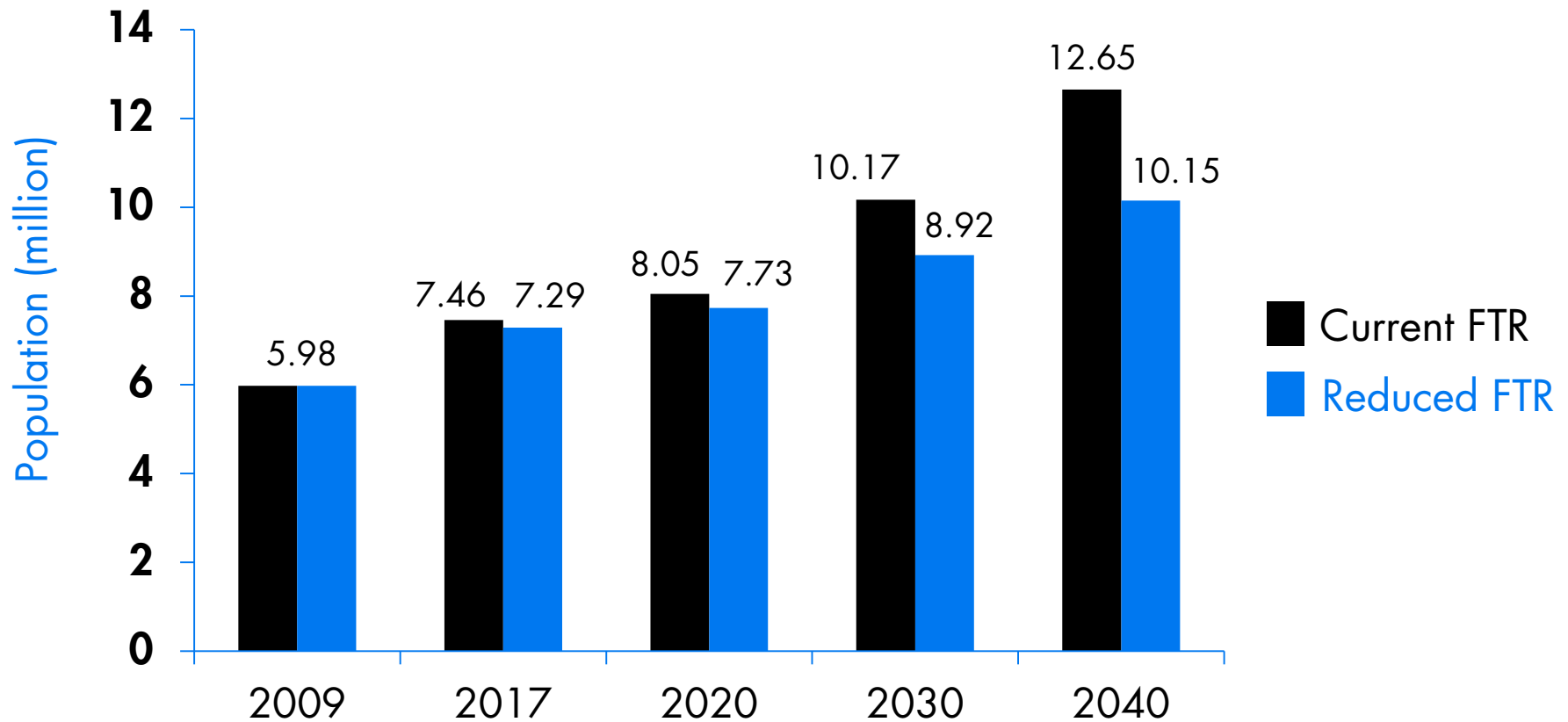
# Annual Births

Fewer births with low fertility



# Population Growth

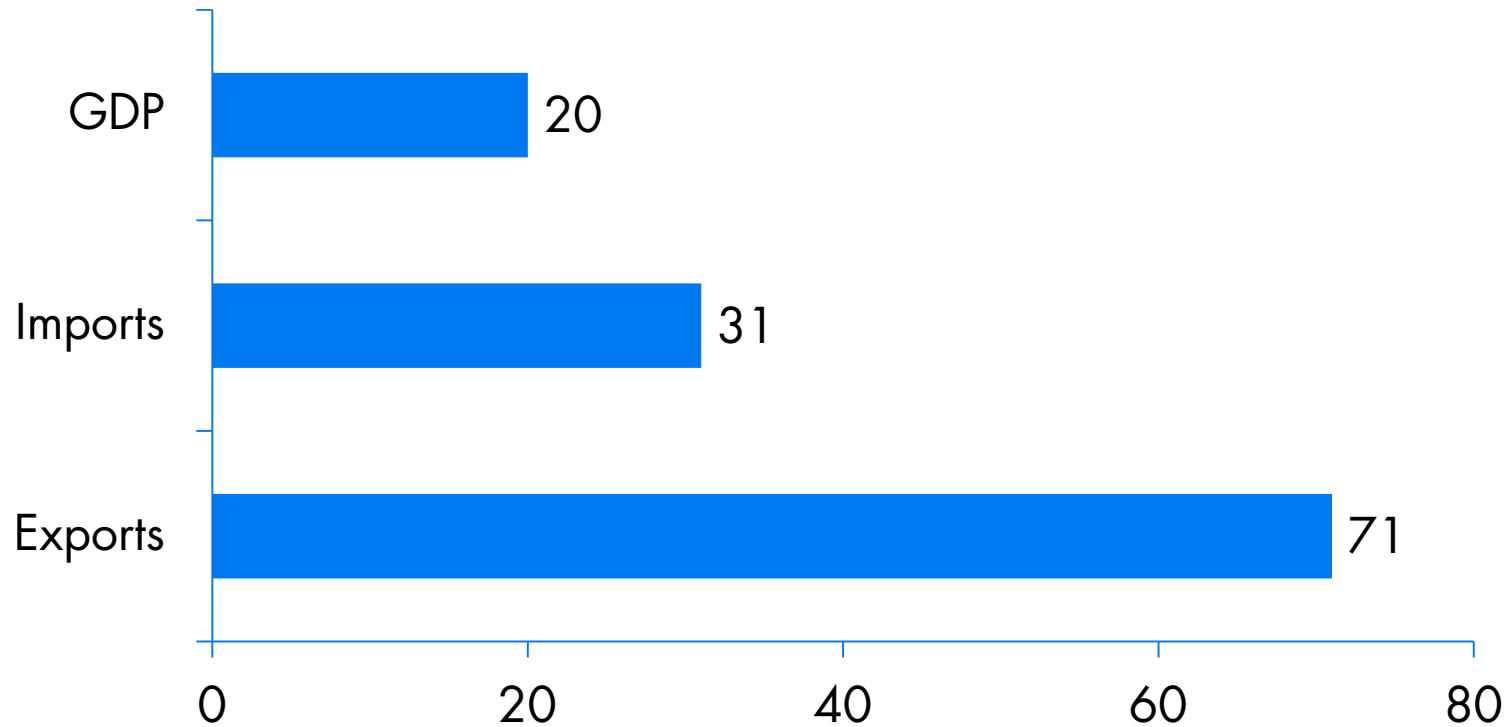
Smaller population with lower fertility



# Outline

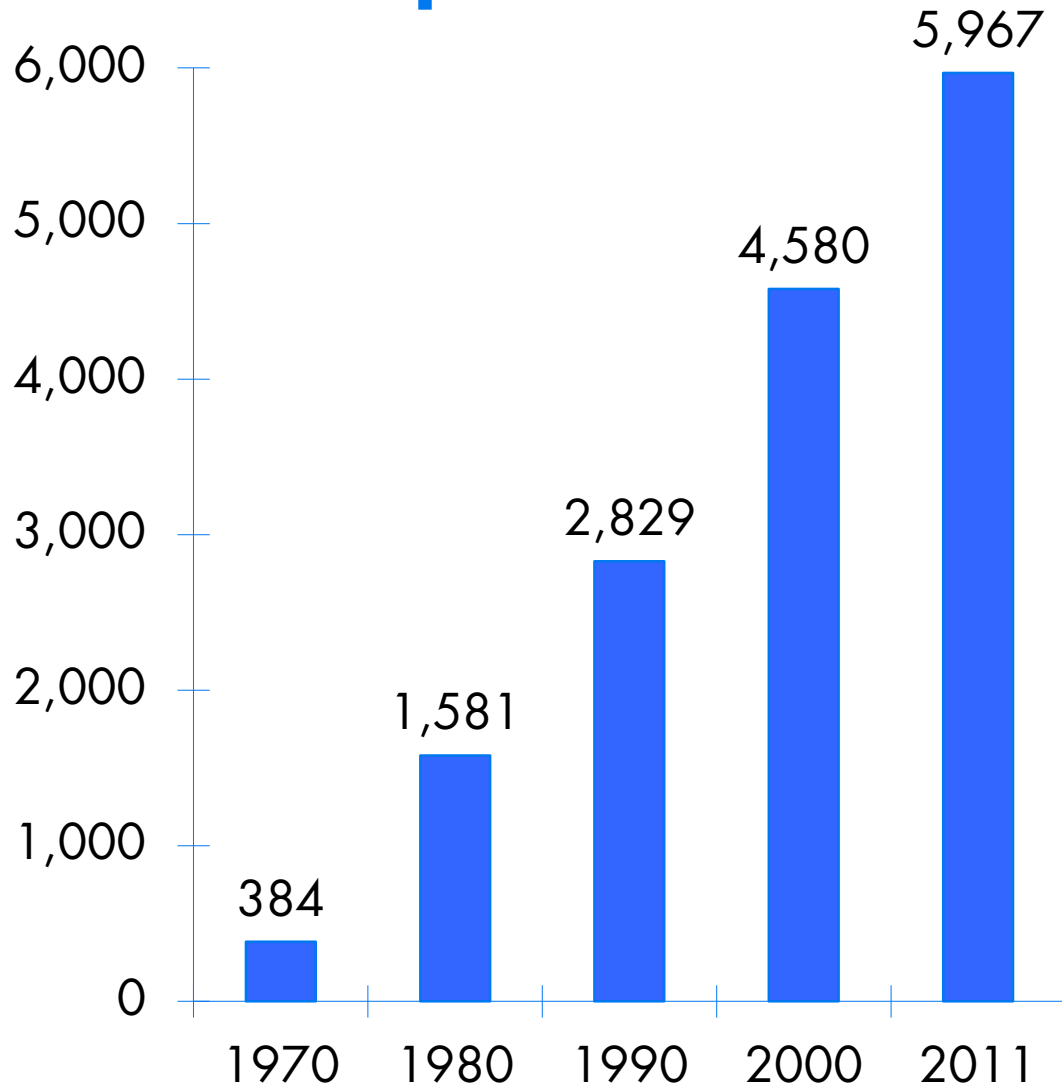
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# Energy Cost (2011) as a Percentage of:

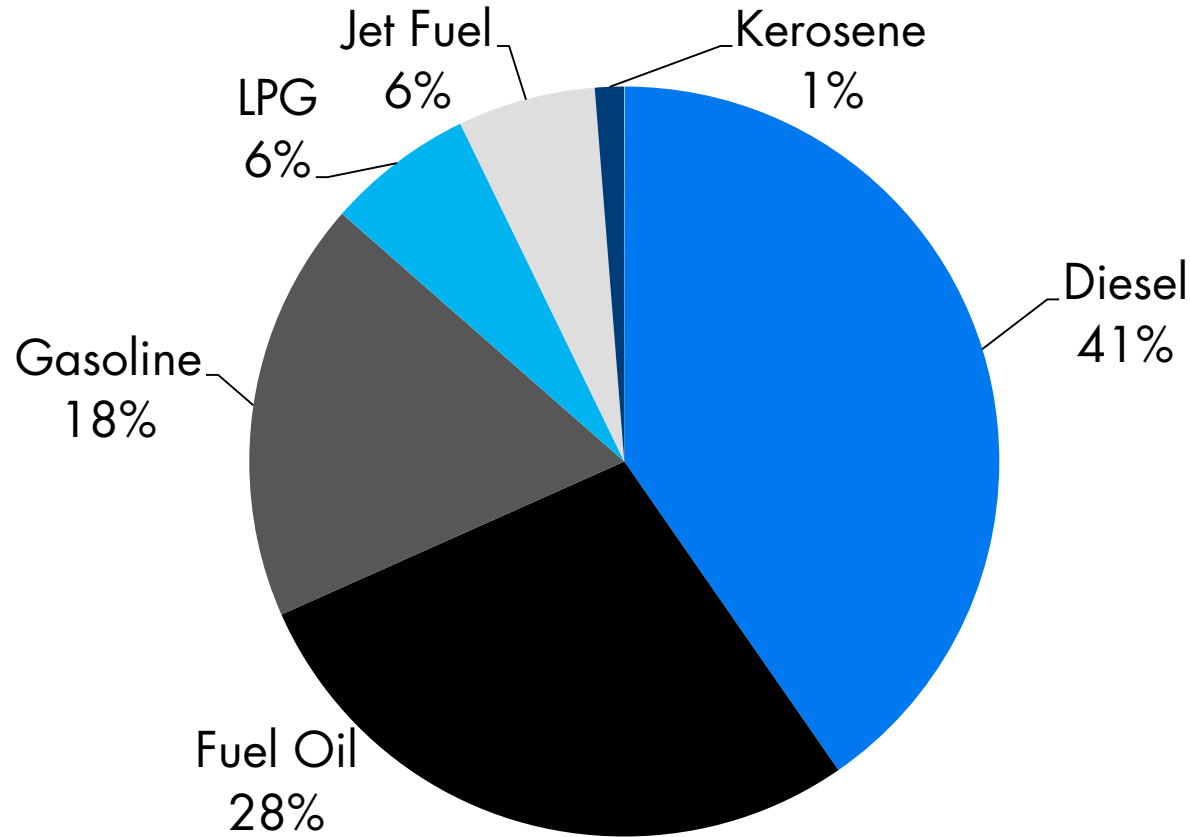




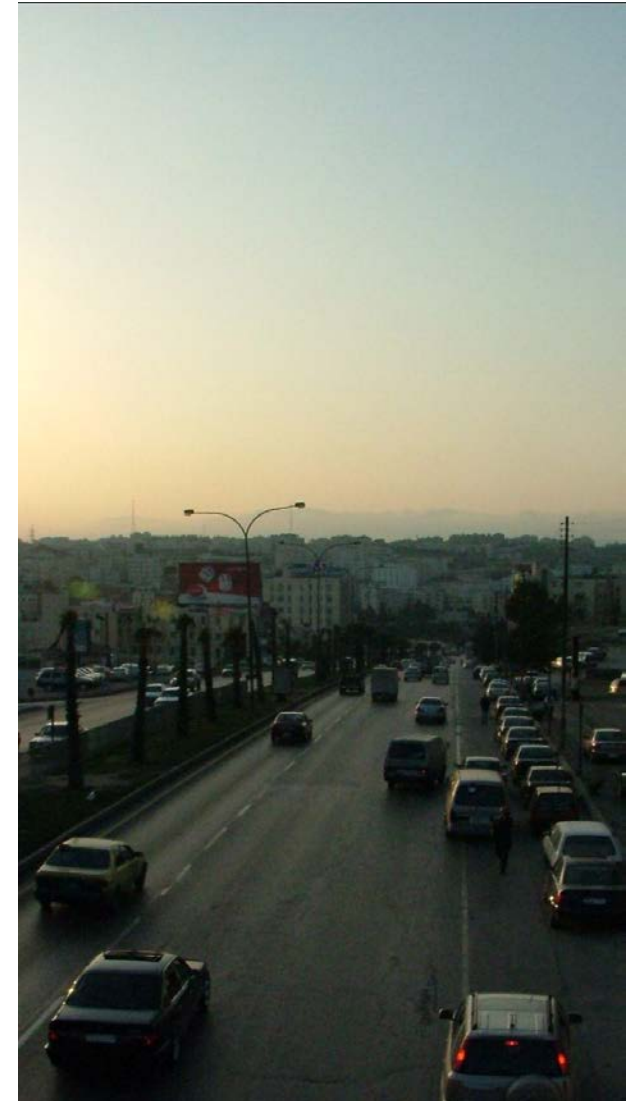
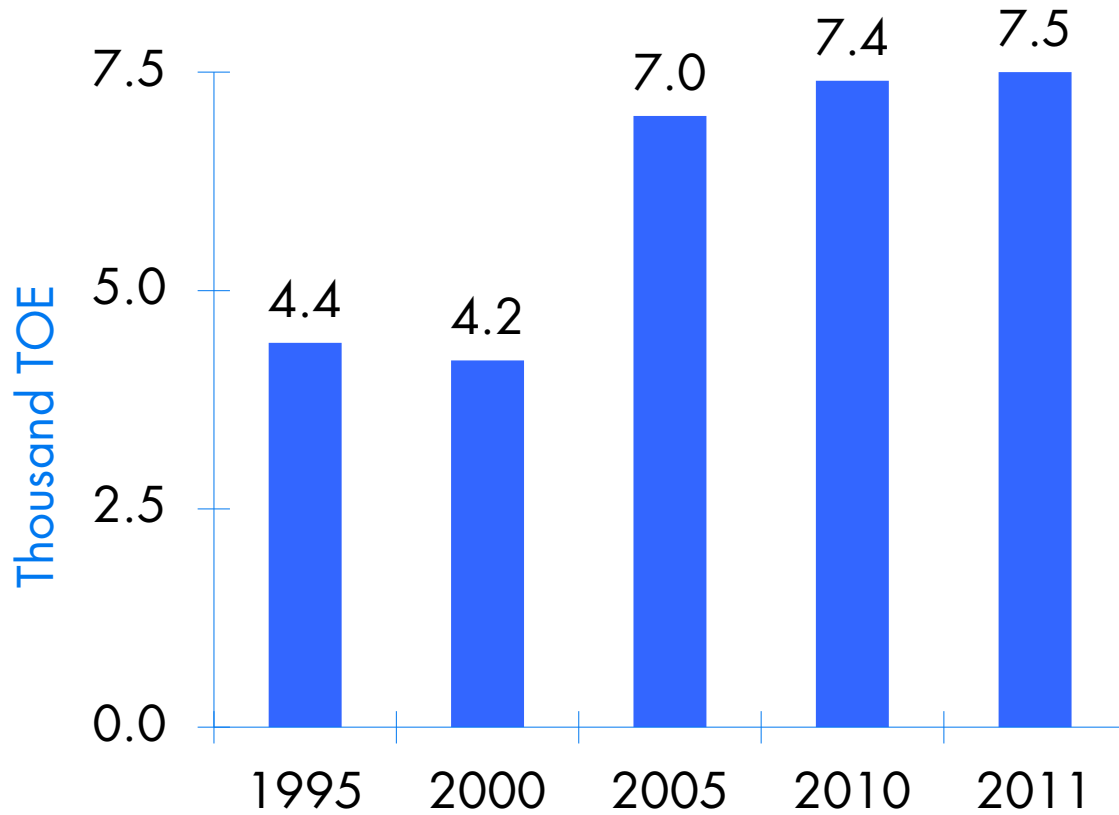
# Trend in Petroleum Products Consumption



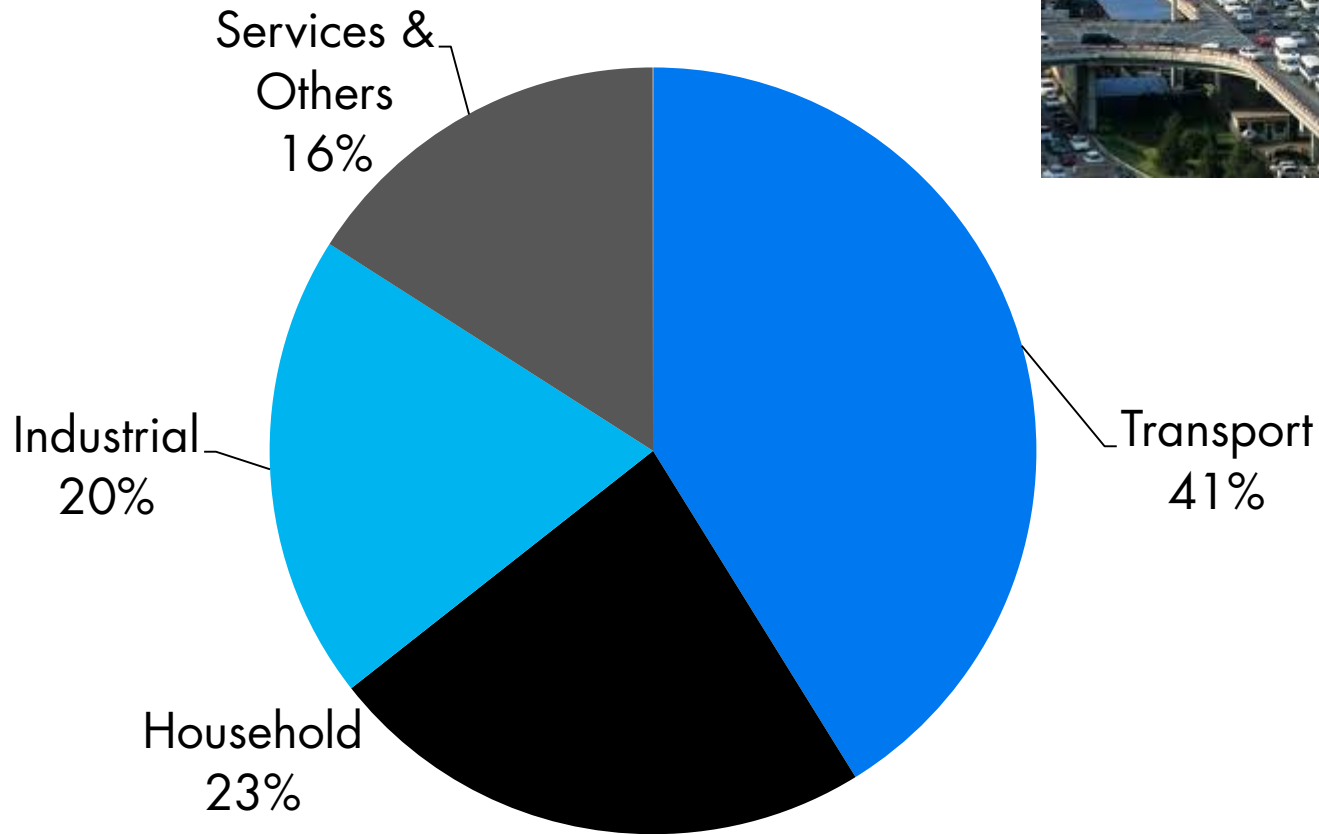
# Petroleum Products Consumption 2011 (6 Million Tons)



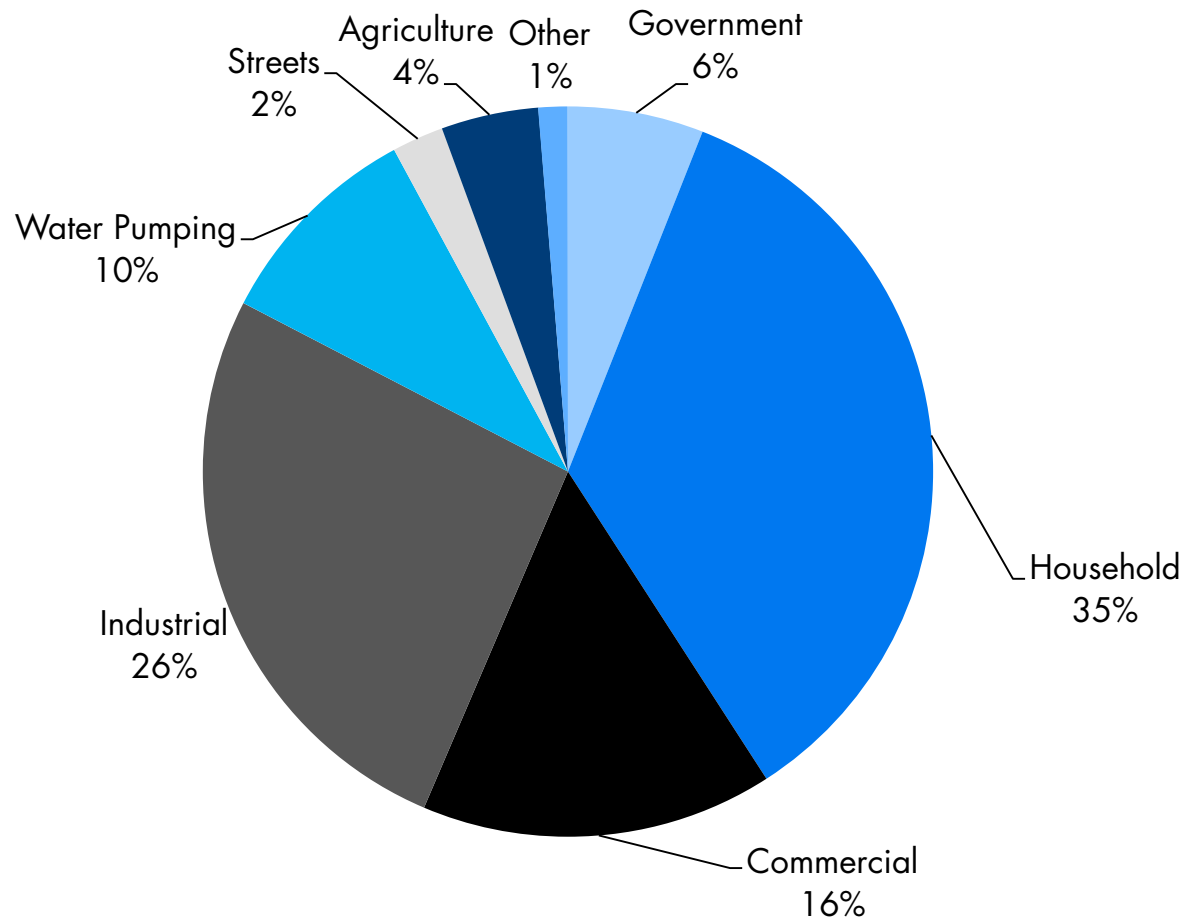
# Trend in Primary Energy Consumption



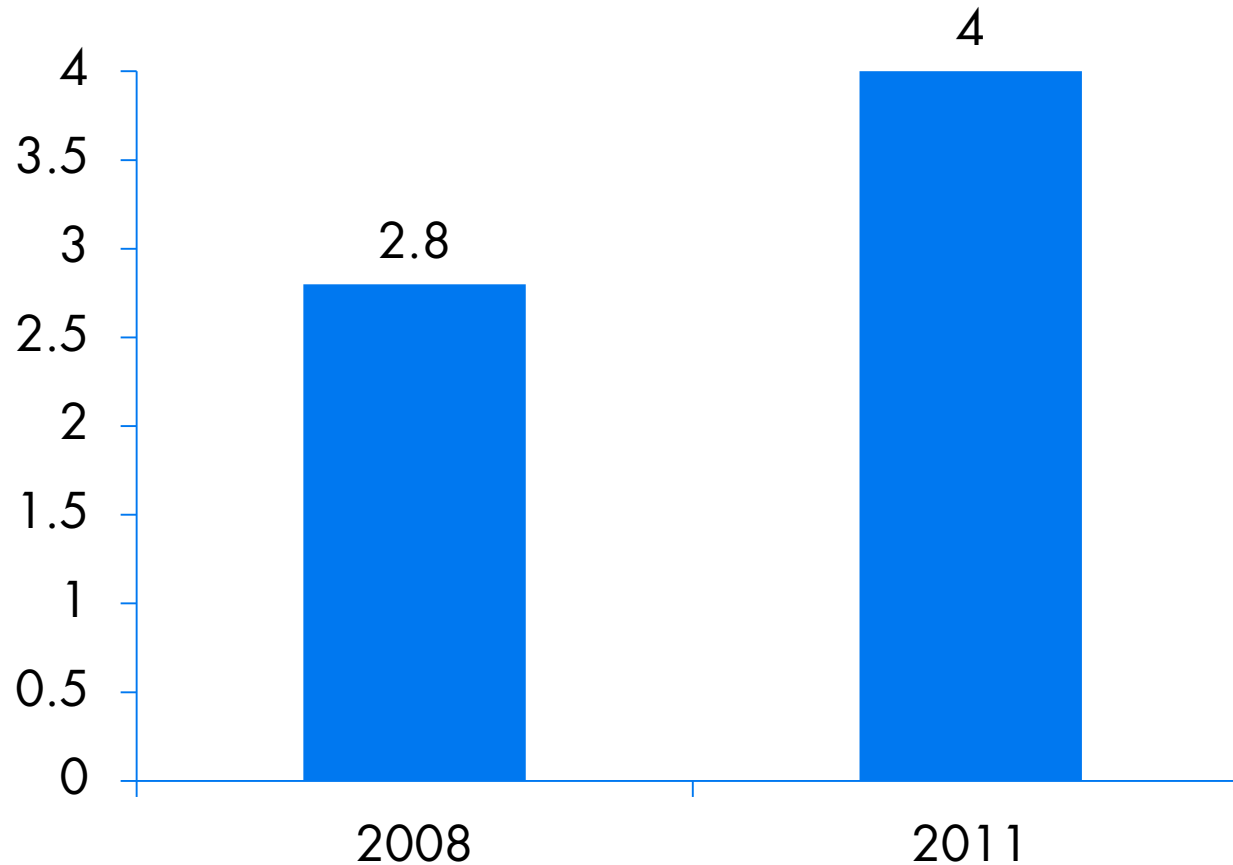
# Final Energy Consumption by Sector 2011



# Electricity Consumption by Sector 2011



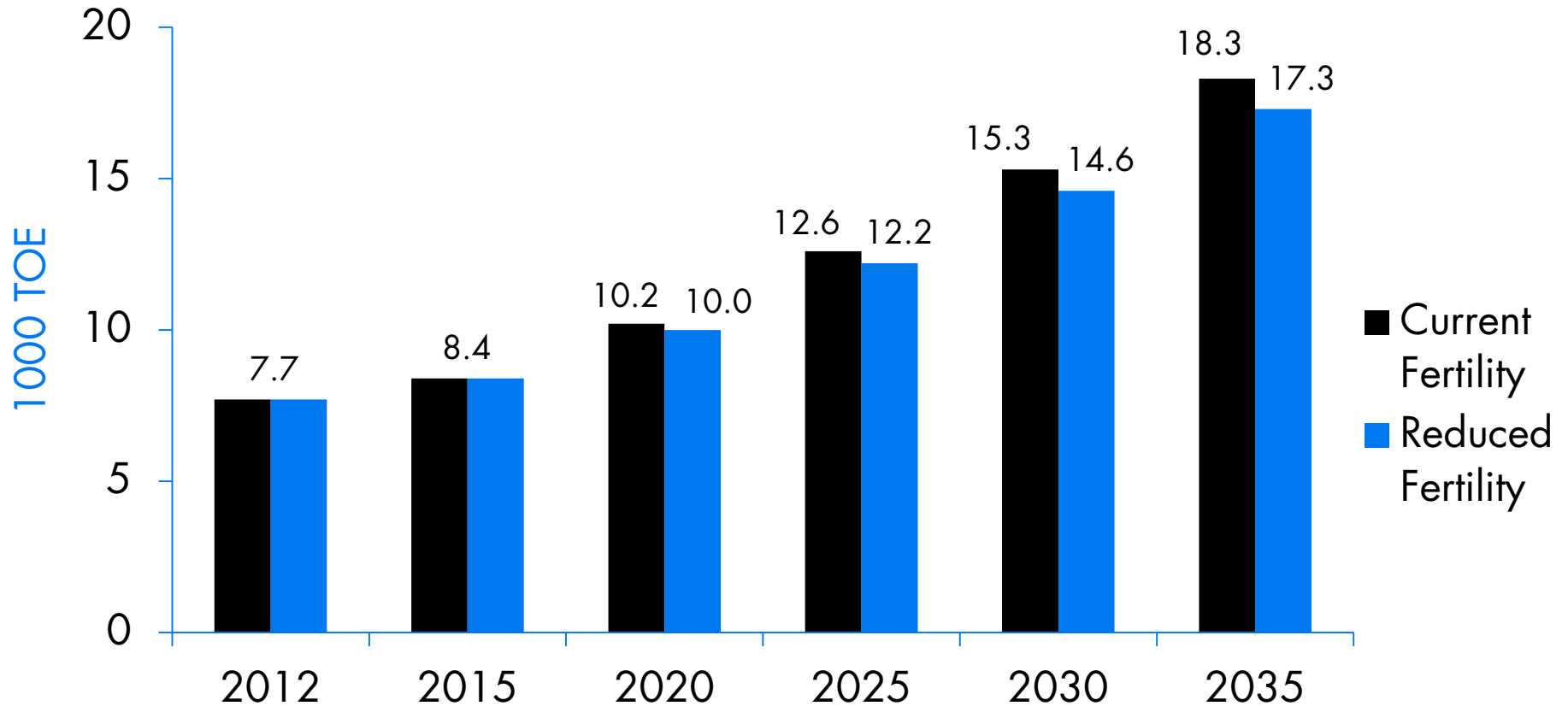
# Increasing Cost of Consumed Energy



# Outline

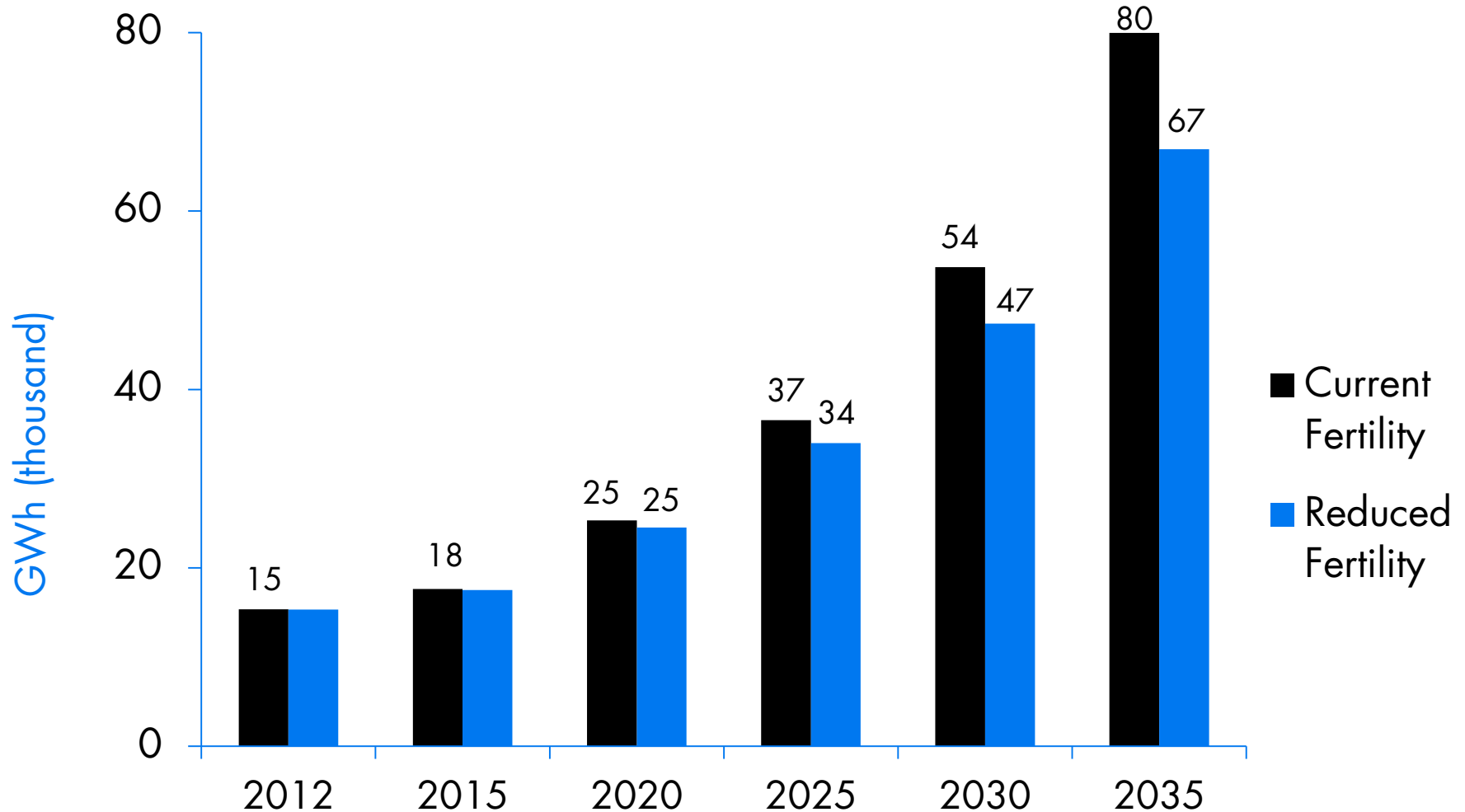
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# Total Primary Energy Demand

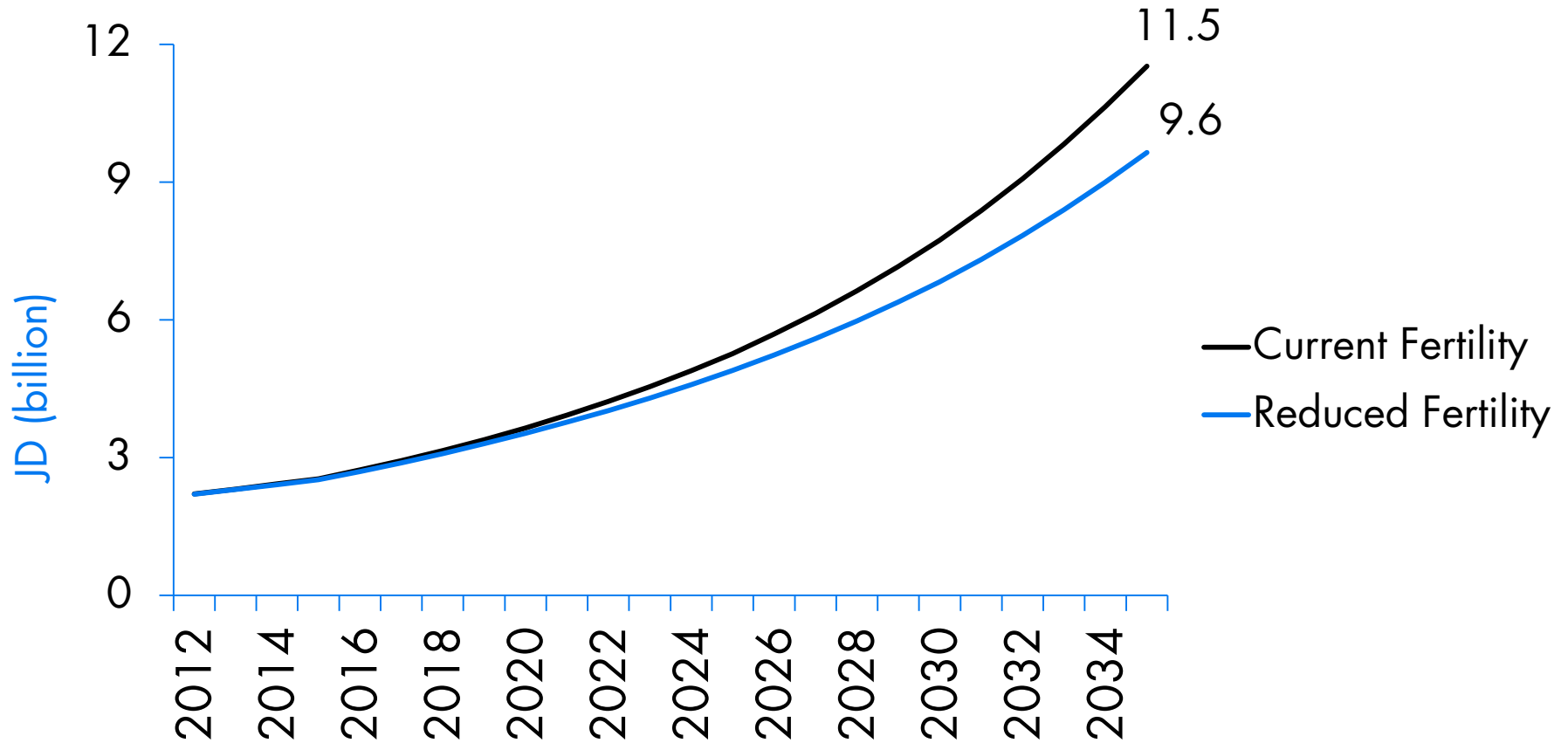




# Total Electricity Consumption

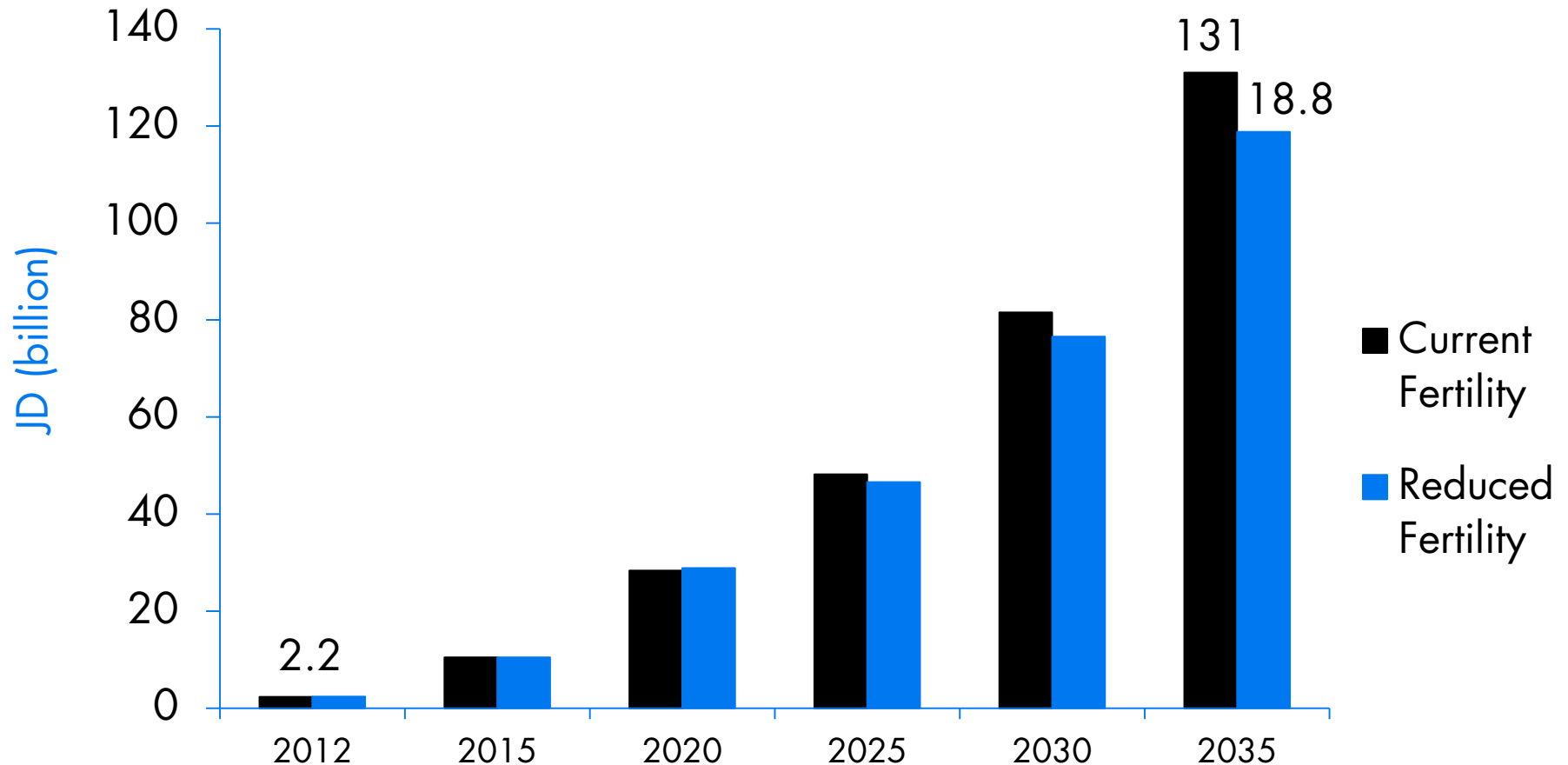


# Costs of Electricity

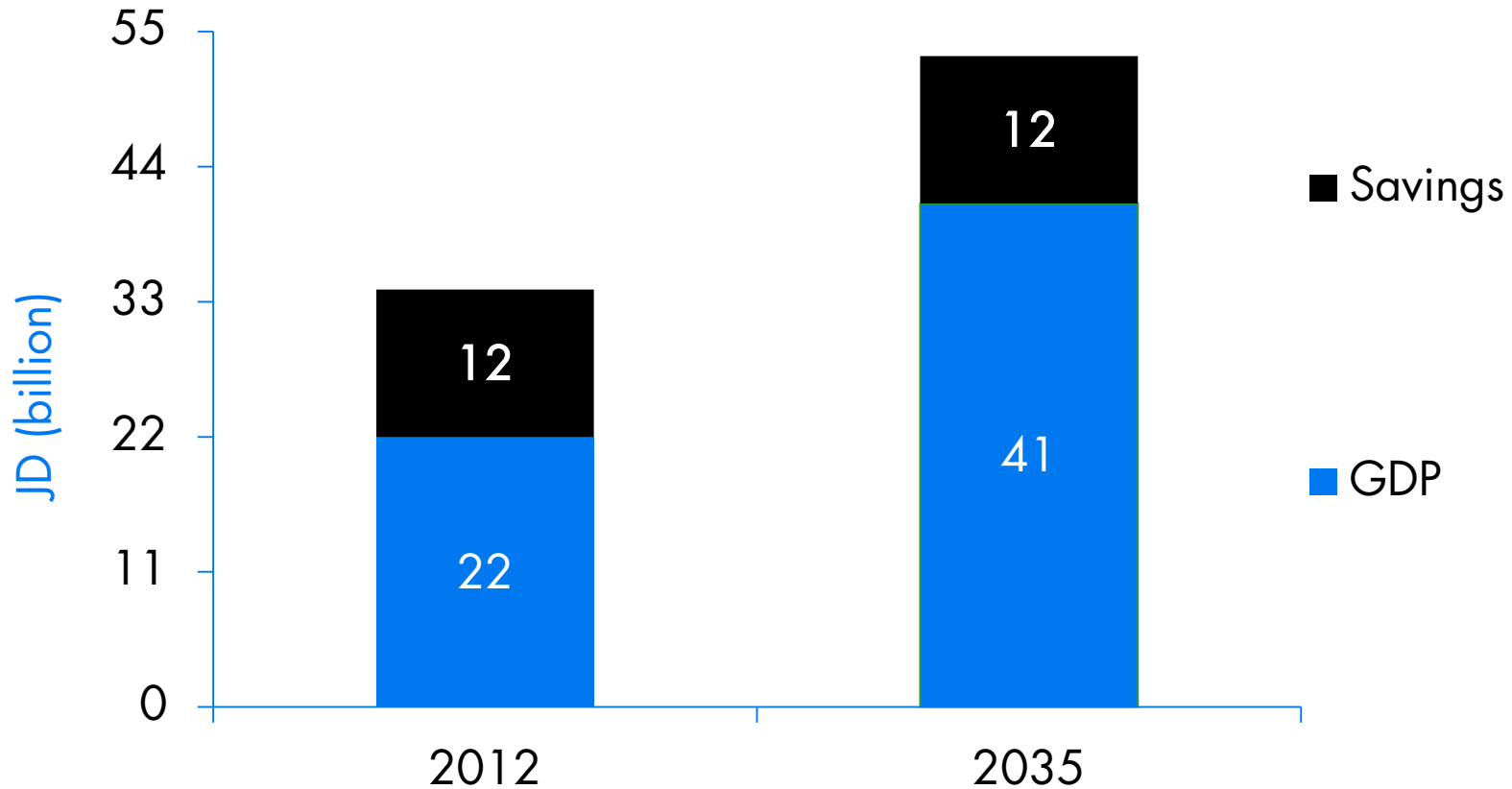


# Cumulative Costs of Electricity

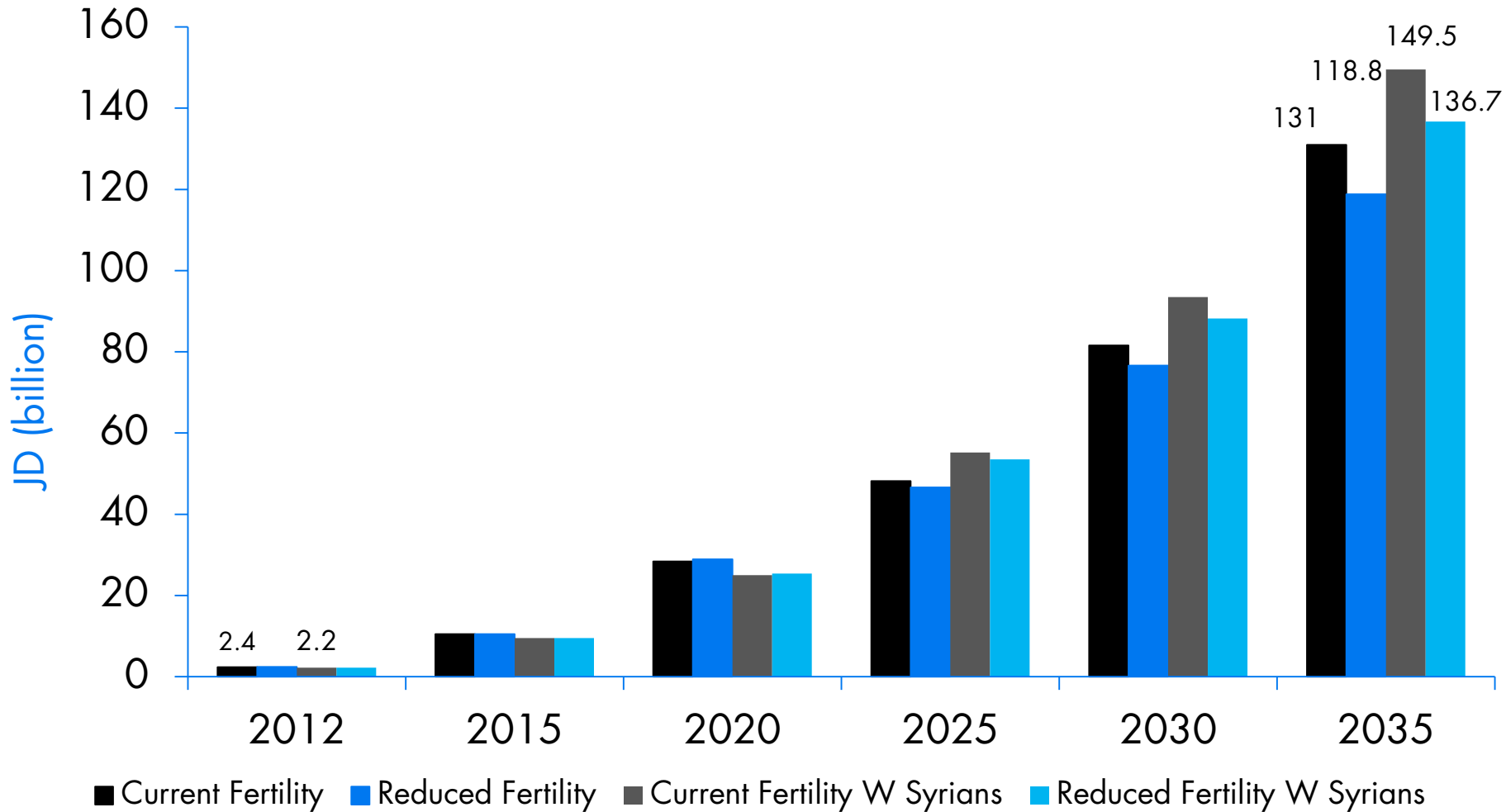
12 billion JD saved between 2012 and 2035



# Cumulative Electricity Savings vs. GDP



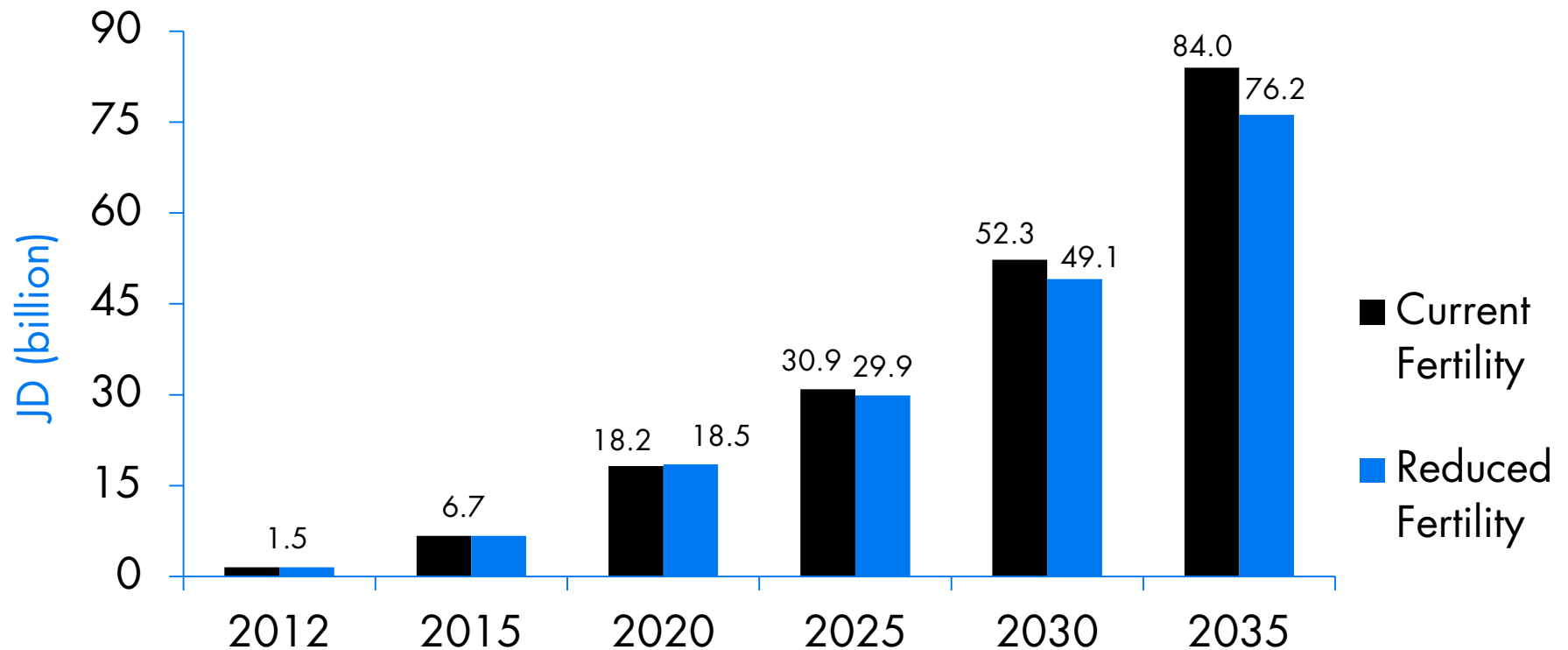
# Cumulative Costs of Electricity



# Cumulative Subsidies for Electricity

Based on current costs

7.8 billion JD saved in subsidies between 2012–2035



# Issues to be Addressed

- Scarcity of local sources of oil and natural gas
- Increasing prices of imported oil
- Critical and serious energy supply-demand imbalance
- High cost of developing new sources of energy
  - Building solar and wind power plants
  - Building non-conventional power plants (nuclear and Red-Dead Sea Canal)
- Increasing demand on energy from changes in population size, vehicle numbers, development, and lifestyles

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# Objectives of Energy Sector Strategy

- 1 Diversify the sources and kinds of energy**
- 2 Utilize the local conventional and renewable sources**
- 3 Liberalize market and open it for private competition**
- 4 Reinforce the regional energy grid projects**
- 5 Rationalize consumption in all sectors and improve efficiency**

...in addition...

**Reduce future growth in total energy consumption**

# Population-related Actions



- **High-level officials publicly support family planning**
- **All Ministries consider population in their plans**
- **Adequate funds are made available to implement plans**
- **Encourage government and nongovernmental participation**

# A comprehensive security strategy is needed to face the energy challenge

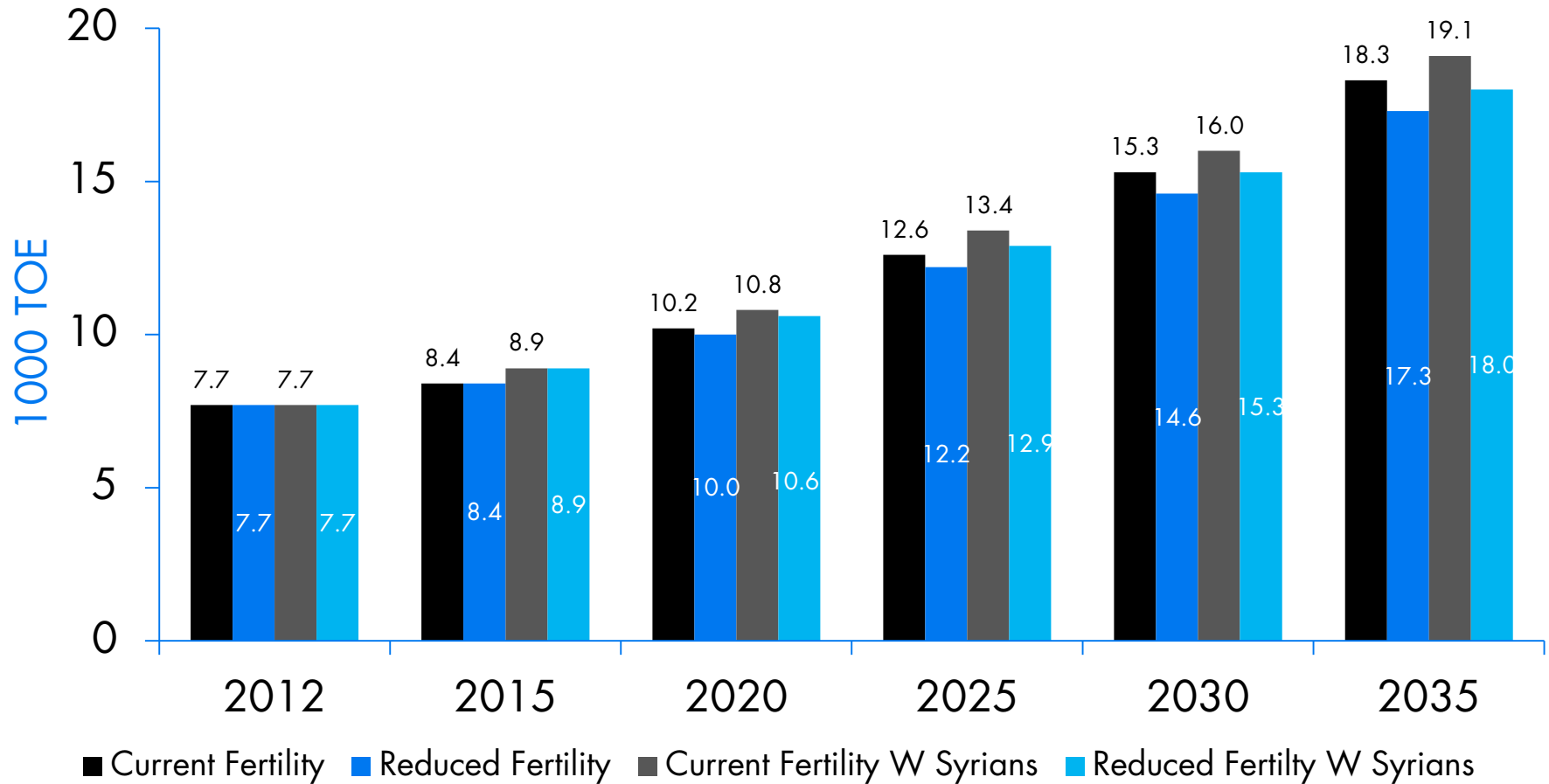


“We were amongst the first countries in the region to realize the importance of gradual diversification of energy sources to protect our country from fluctuations in the international market prices and thus entrench the sovereignty and stability of our economic and development-related decision making.”

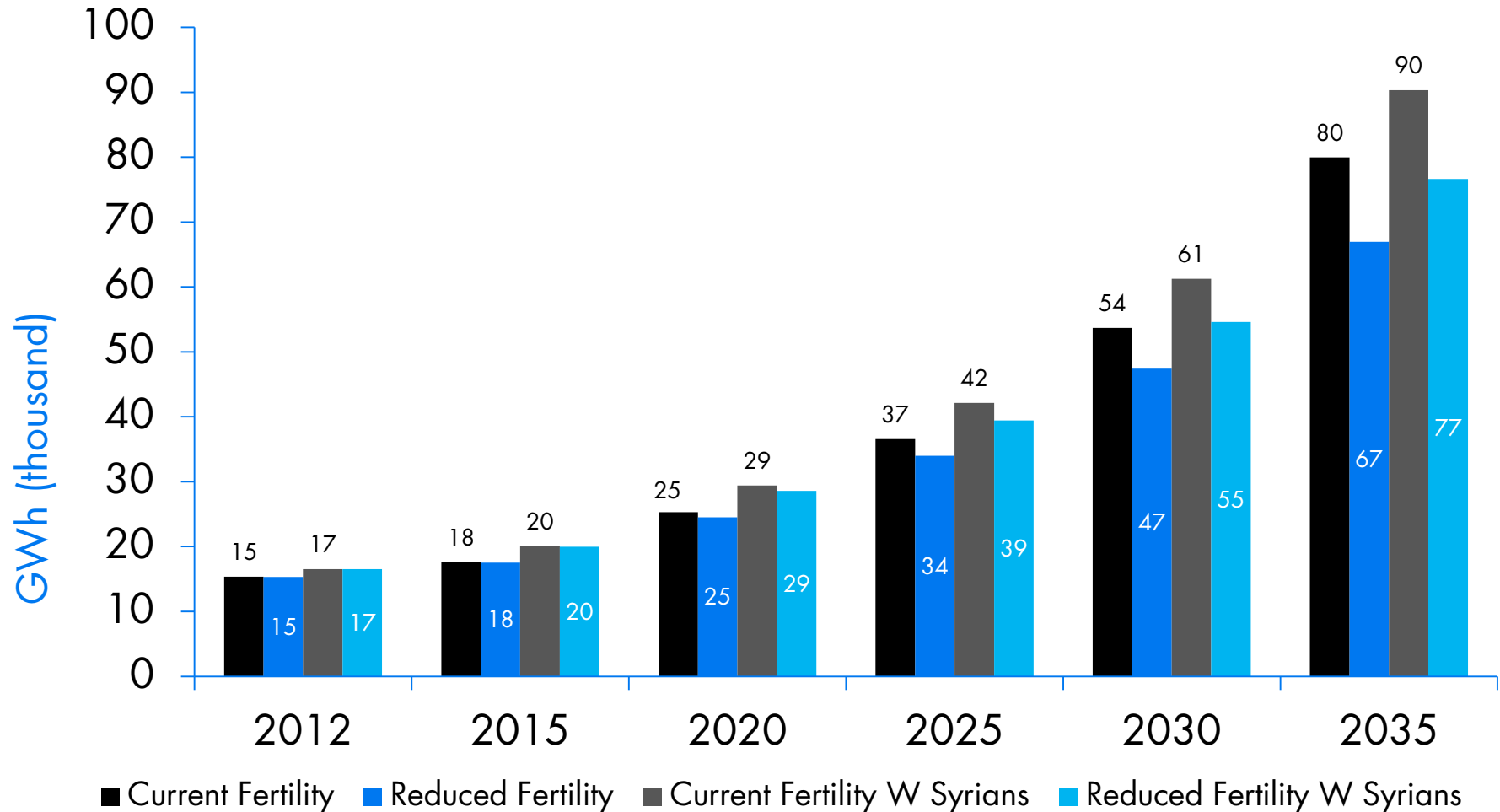
from Letter of Designation to Dr. Abdullah Ensour, October 10, 2012

**Estimates with the Syrians Living in  
Jordan Added  
&  
Cross-Country Comparison**

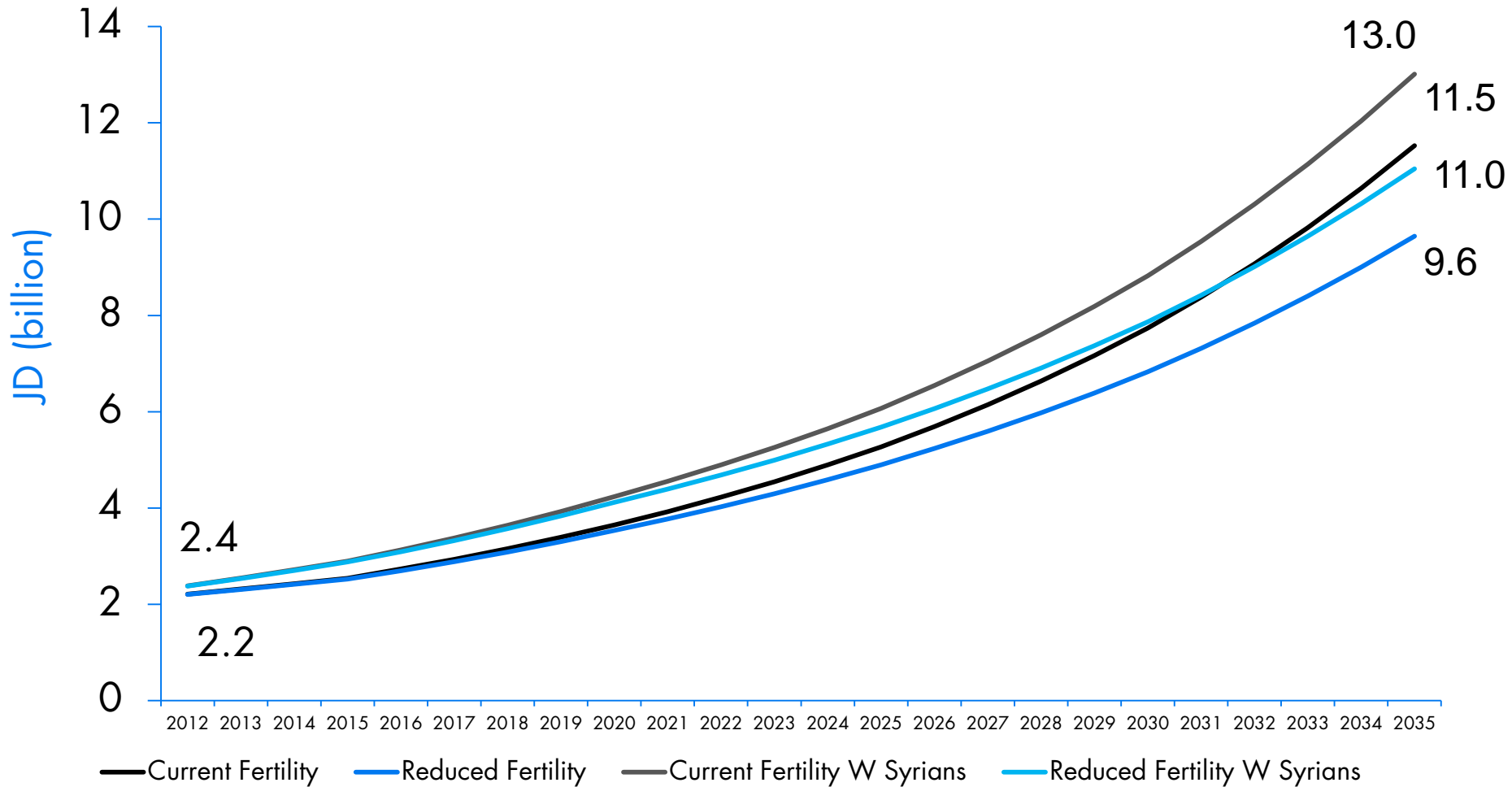
# Total Primary Energy Demand



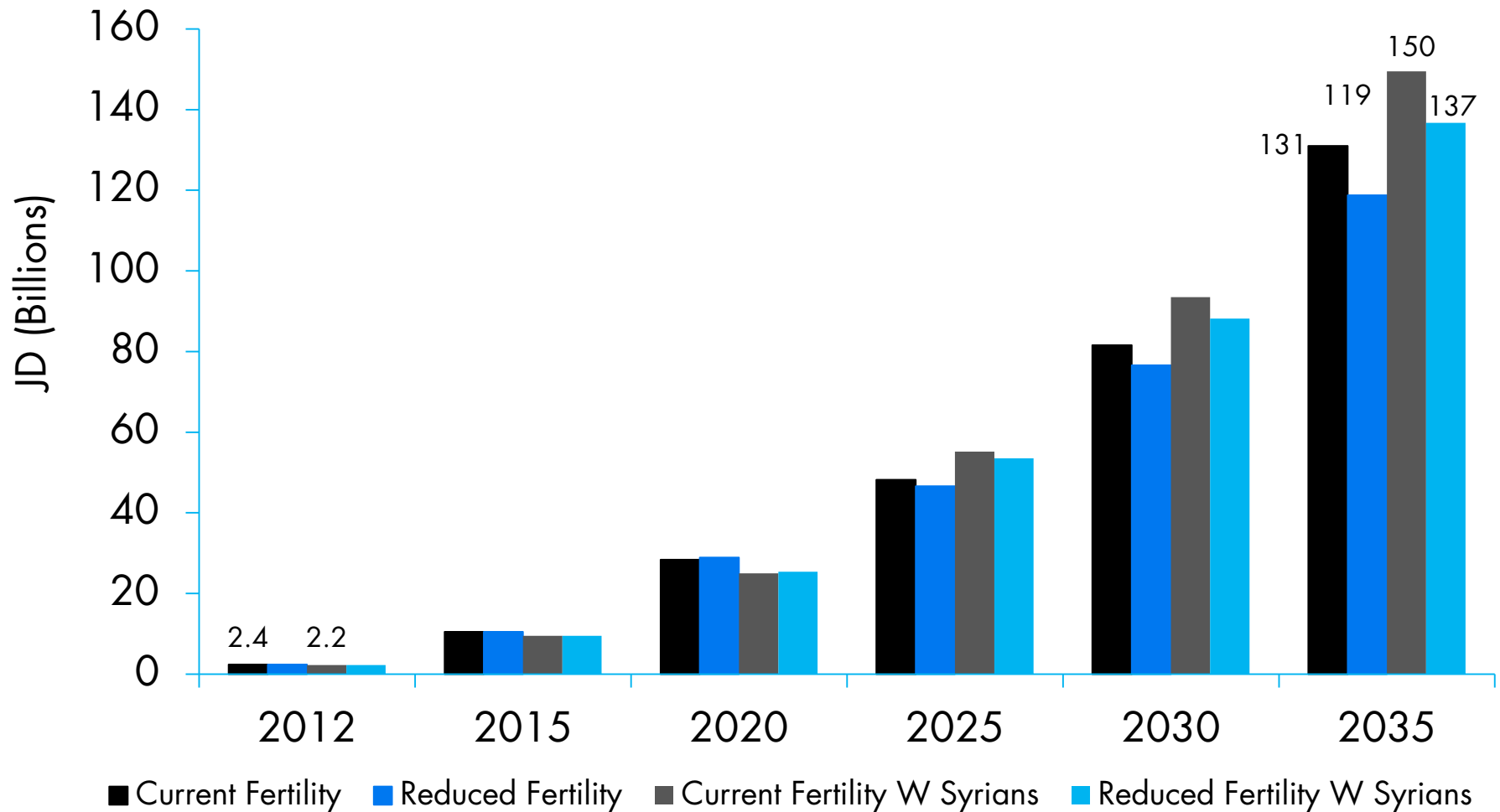
# Total Electricity Consumption



# Costs of Electricity



# Cumulative Costs of Electricity





# Per Capita Energy and Electricity Consumption Per Year

Energy (kgoe); Electricity (kwh)

