

Tracking progress toward the implementation of energy related SDGs in the Arab region

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UNITED NATIONS

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ESCWA

24-25 January, 2017
Beirut, Lebanon

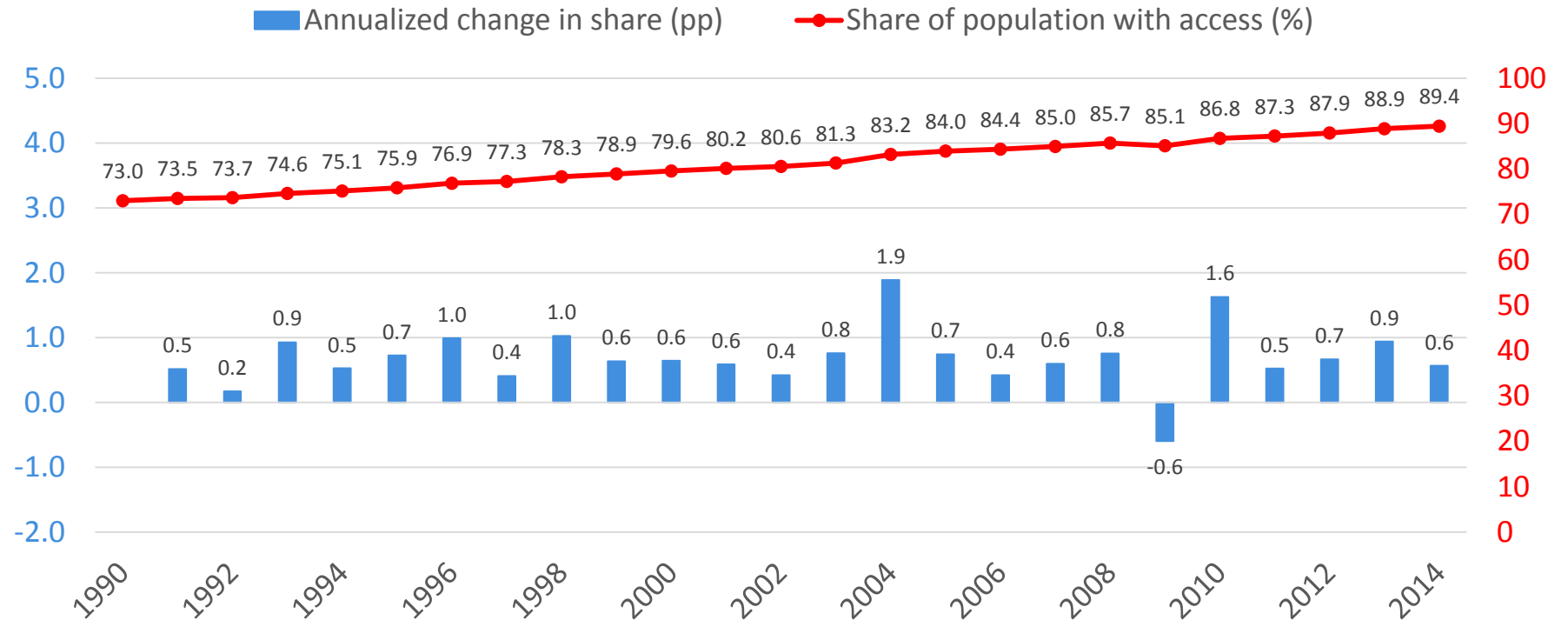
1. Energy Access (EA) in the Arab Region

1. Energy Access (EA) in the Arab Region - Electrification

Trend 1: A widely successful experience in providing near-universal electricity access across most parts of the region

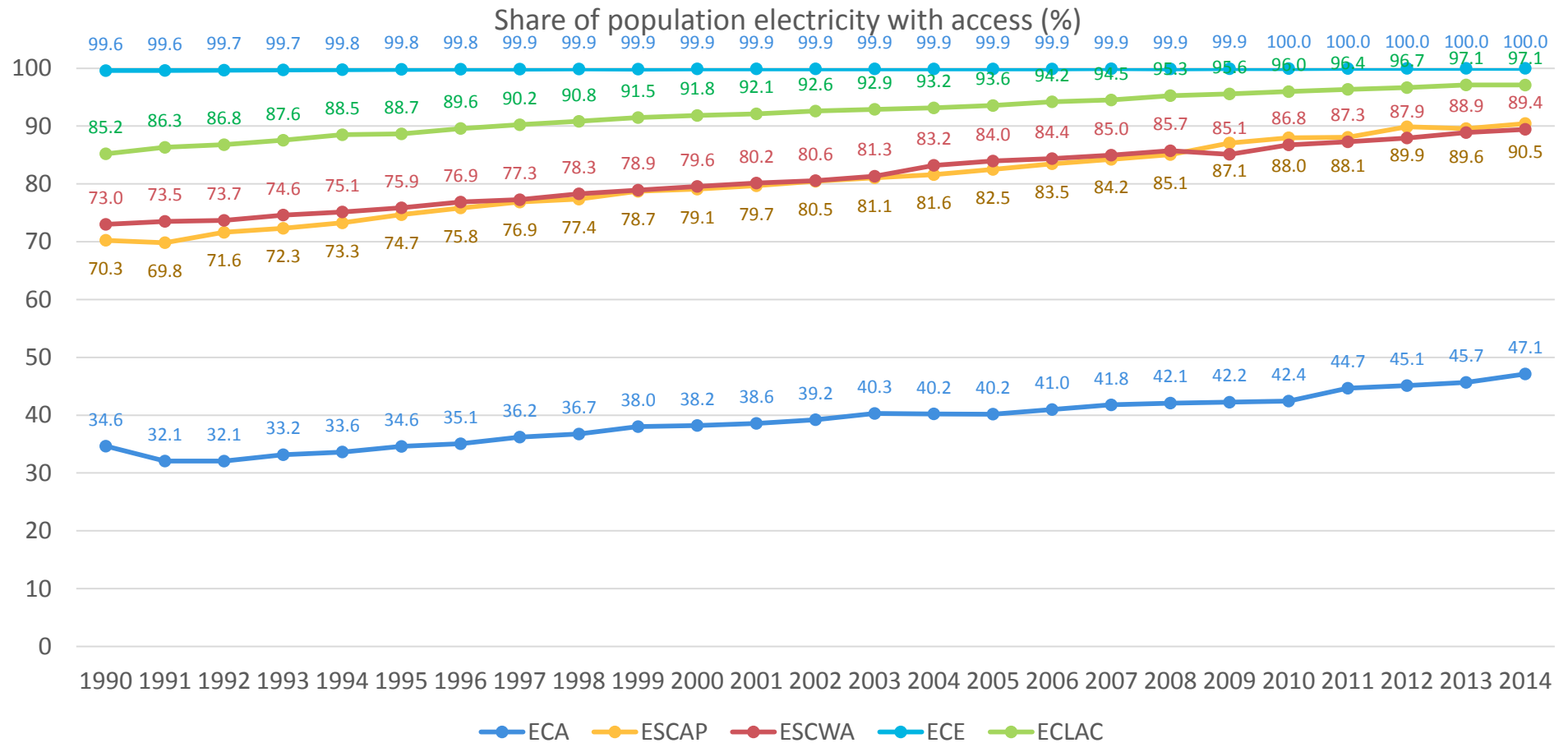
Share of population with access to electricity and annualized change in share
1990-2014

- Overall a positive trend
- Consistent increase in electrification
- Close to 90% regional electrification rate, top in developing regions



1. Energy Access (EA) in the Arab Region - Electrification

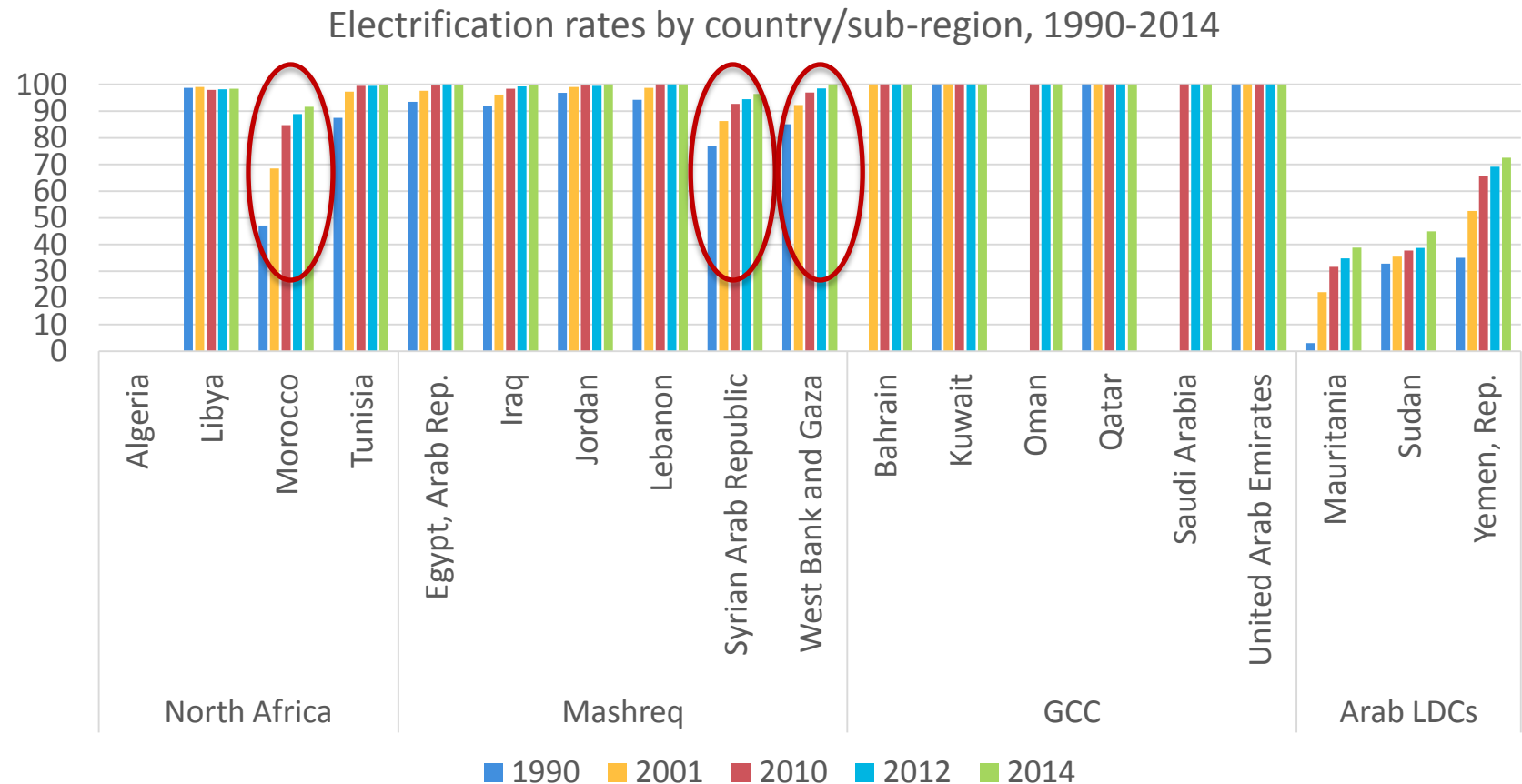
Trend 1: A widely successful experience in providing near-universal electricity access across most parts of the region



1. Energy Access (EA) in the Arab Region - Electrification

Trend 1: A widely successful experience in providing near-universal electricity access across most parts of the region

- Near-universal electricity access in the GCC several decades down
- Systematic electrification programmes closed large parts of the existing gaps in North Africa and the Mashreq during the 1990s and early 2000s

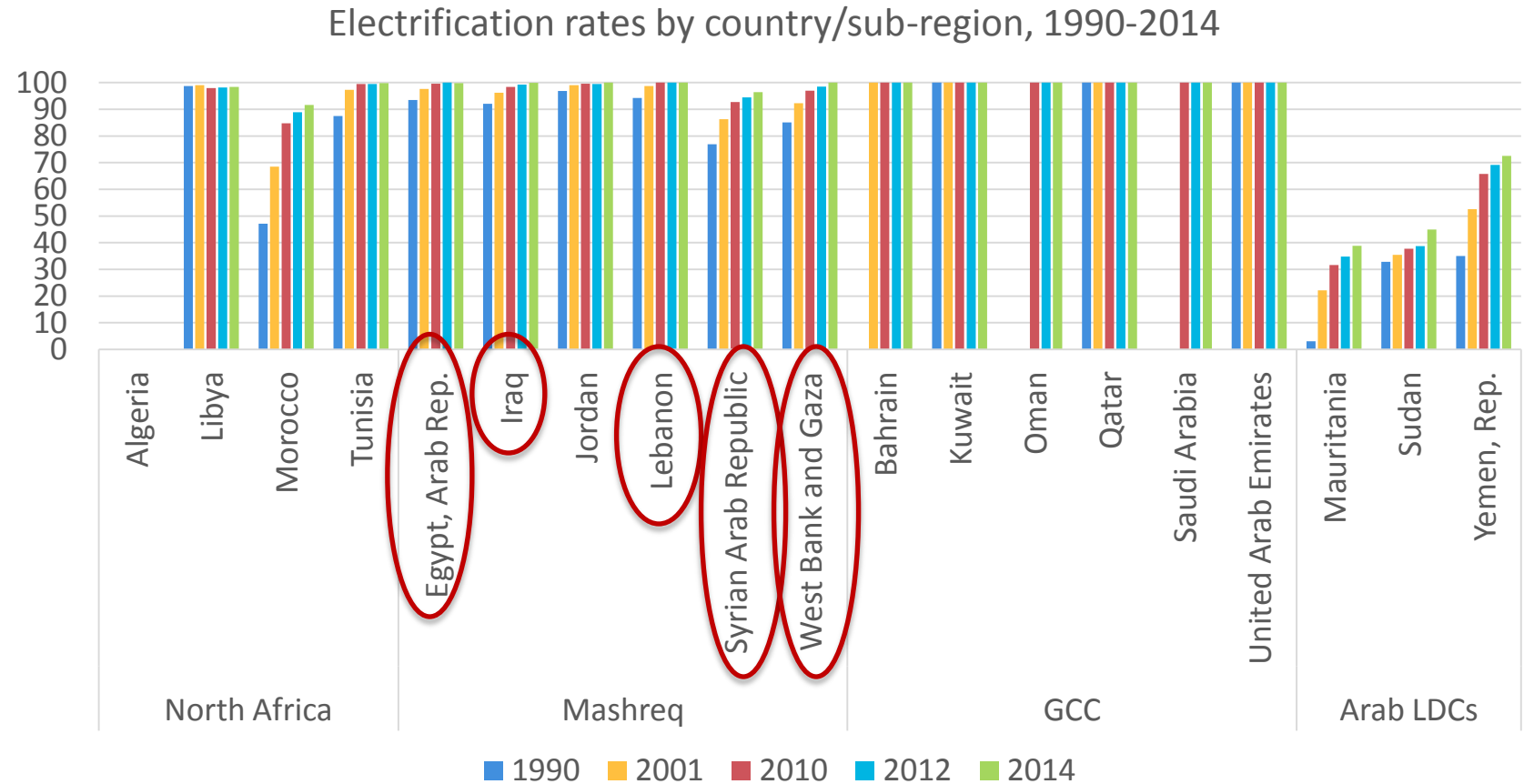


1. Energy Access (EA) in the Arab Region - Electrification

Trend 1: A widely successful experience in providing near-universal electricity access across most parts of the region

What the data does not show:

- Quality and reliability of service (national grid/mini-grid access, working hours per day, number of outages per month)
- Use of private generators to back up power supply during times of disruption
- Cost and affordability



1. Energy Access (EA) in the Arab Region - Clean Cooking Fuels and Technology (CFTs)

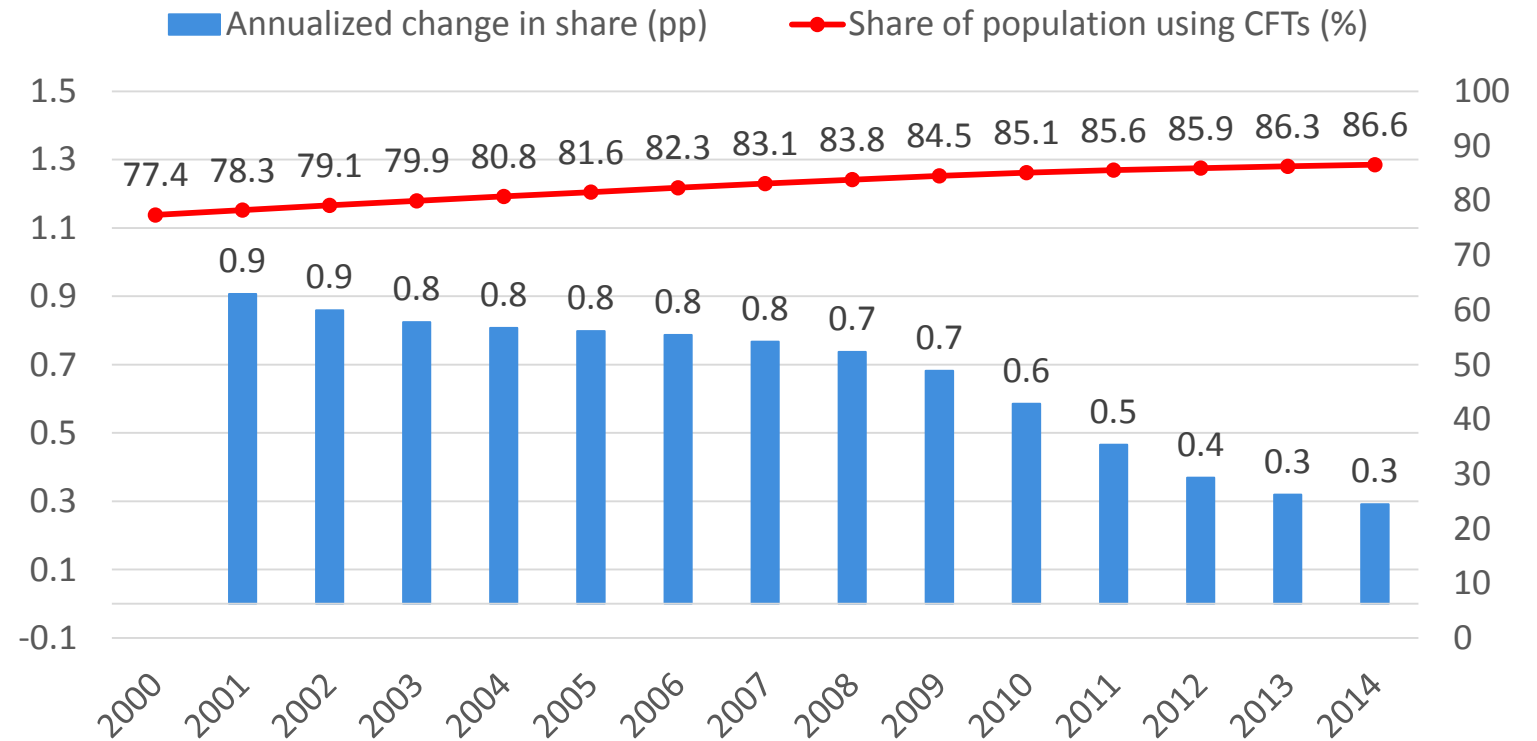
Trend 1: Similarly high access rates to CFTs

Consistent growth in access to CFTs up to 86.6% by 2014 – highest in the developing world

Decelerating growth as coverage becomes more universal

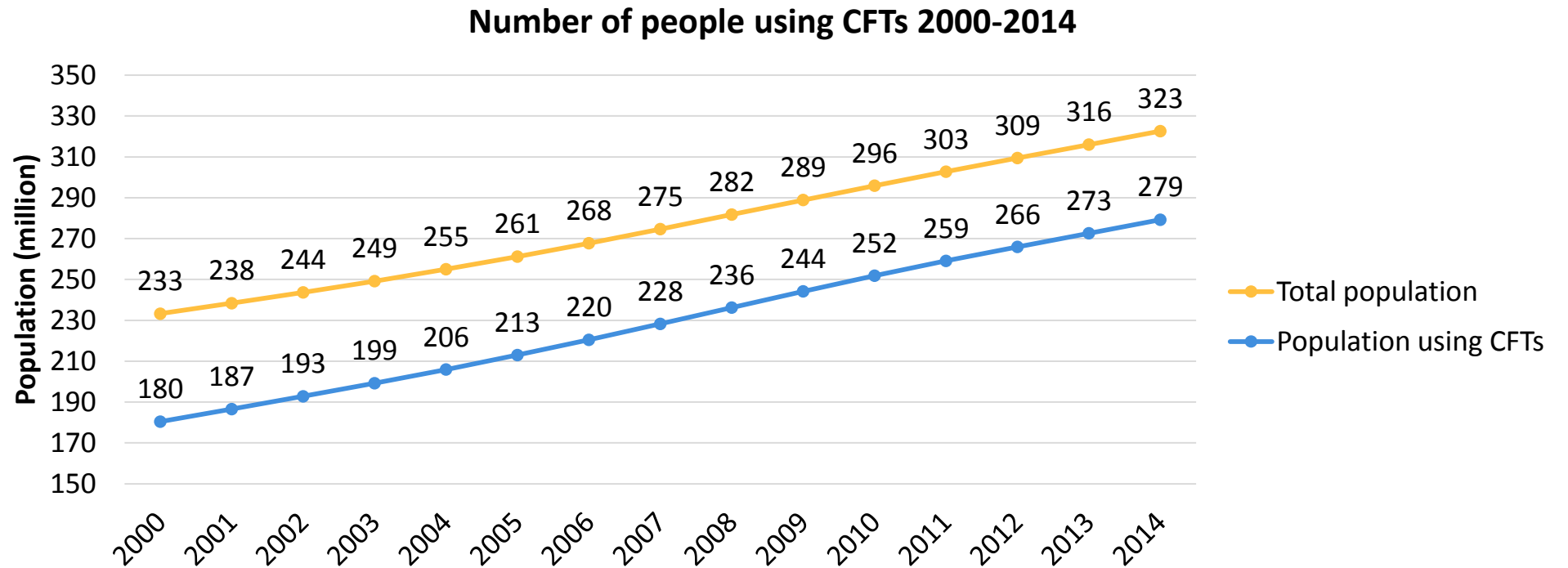
Policy success? Other factors to consider?

Share of population using CFTs and annualized change in share
2000-2014



1. Energy Access (EA) in the Arab Region – Clean Cooking Fuels and Technology (CFTs)

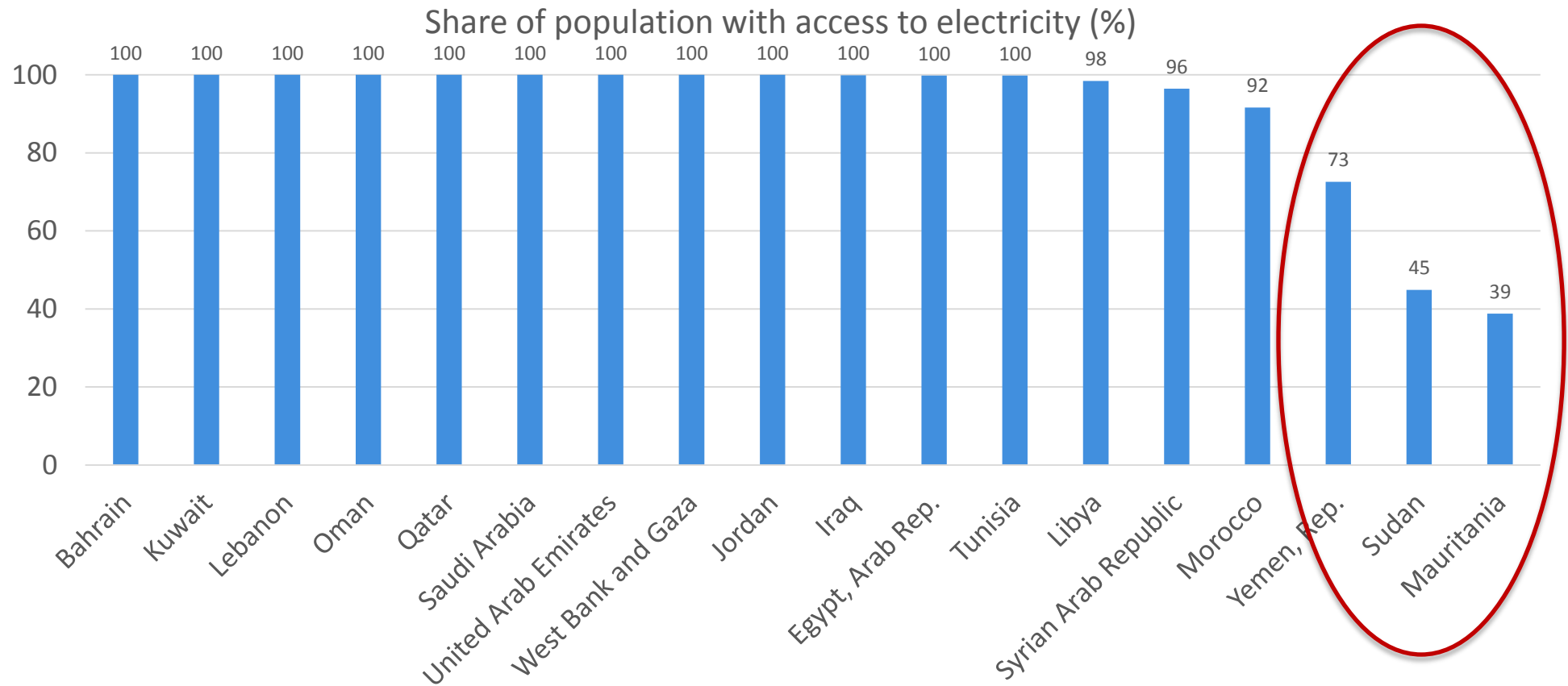
Trend 1: Similarly high access rates to CFTs



However, a gap of around 44 million people remains, primarily in Arab African countries and Yemen

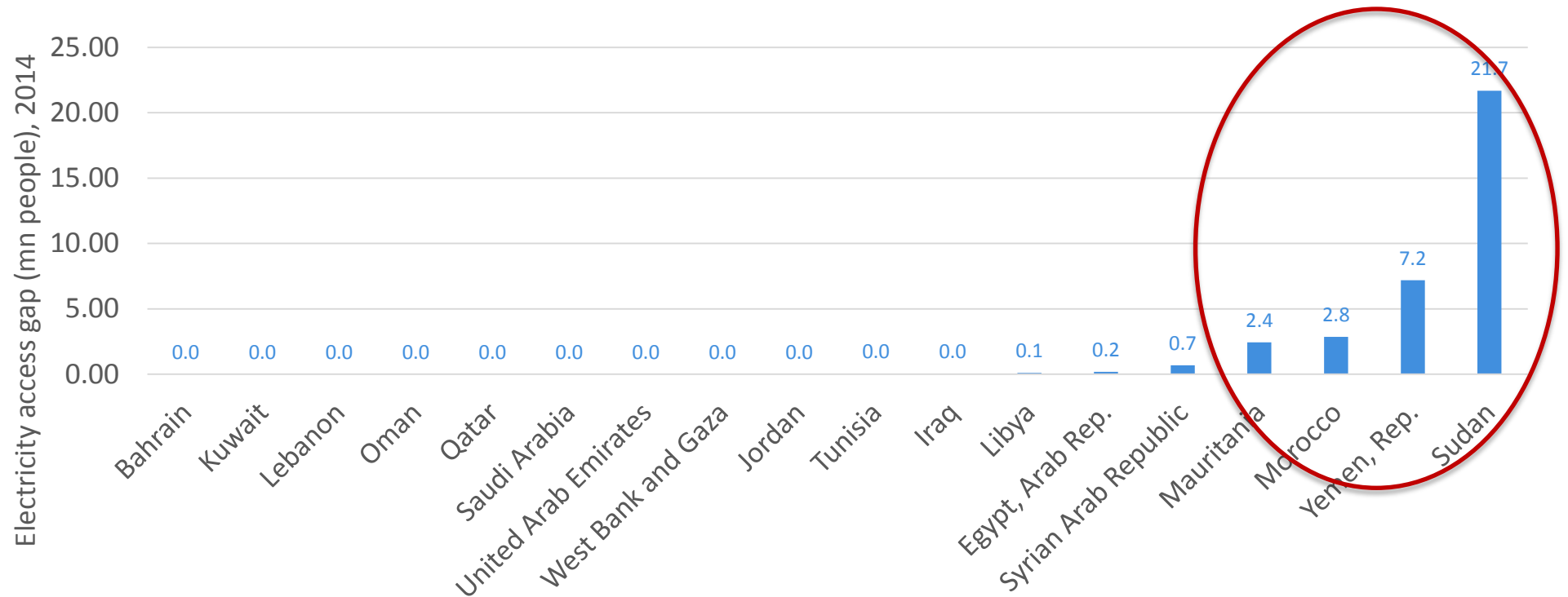
1. Energy Access (EA) in the Arab Region - Electrification

Trend 2: A wide gap between the Arab Least Developed Countries (LDCs) and "the Rest"



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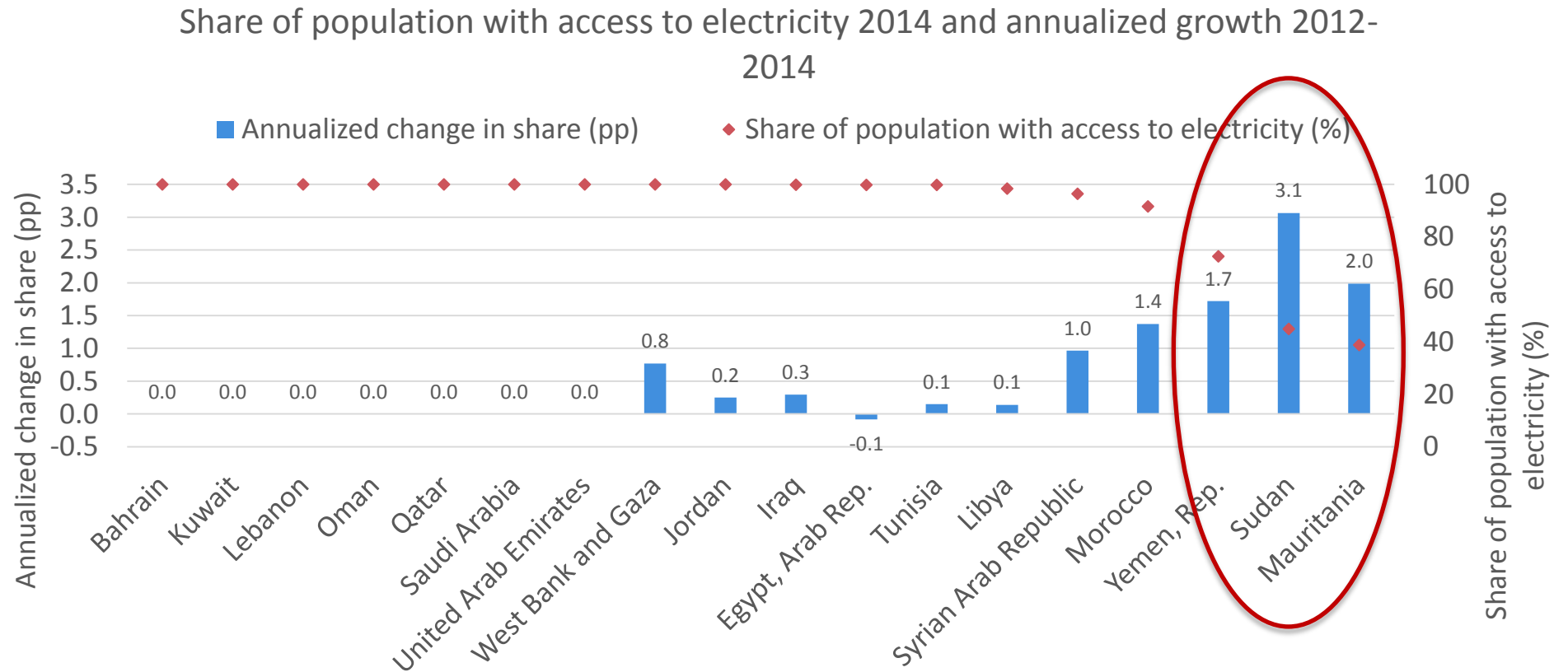
Trend 2: A wide gap between the Arab Least Developed Countries (LDCs) and "the Rest"



Sudan, Yemen, Morocco and Mauritania account for over 97% of the Arab region's access gap

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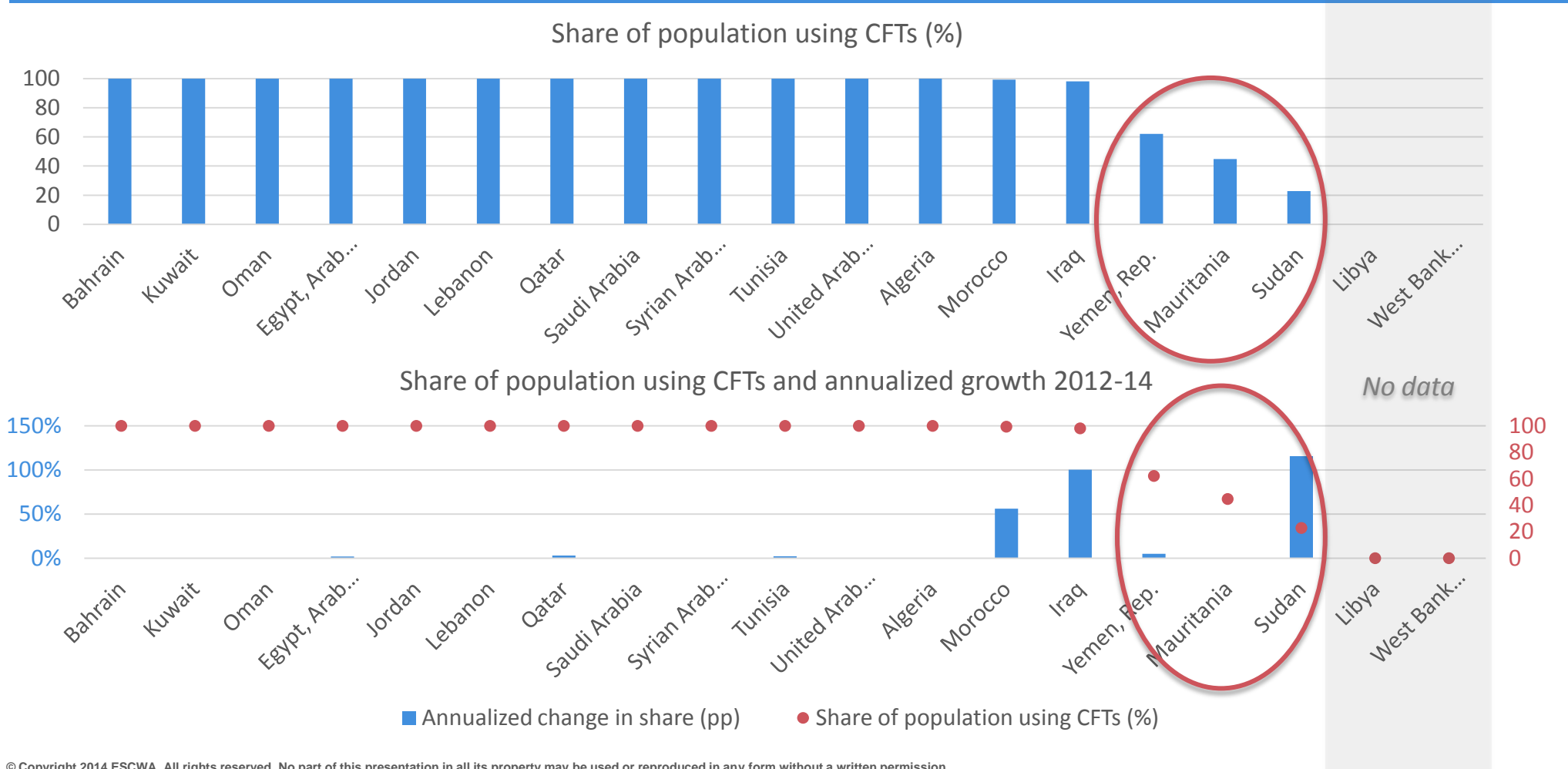
Trend 2: A wide gap between the Arab Least Developed Countries (LDCs) and "the Rest"



But countries with incomplete electrification rates also improve their access rates rapidly

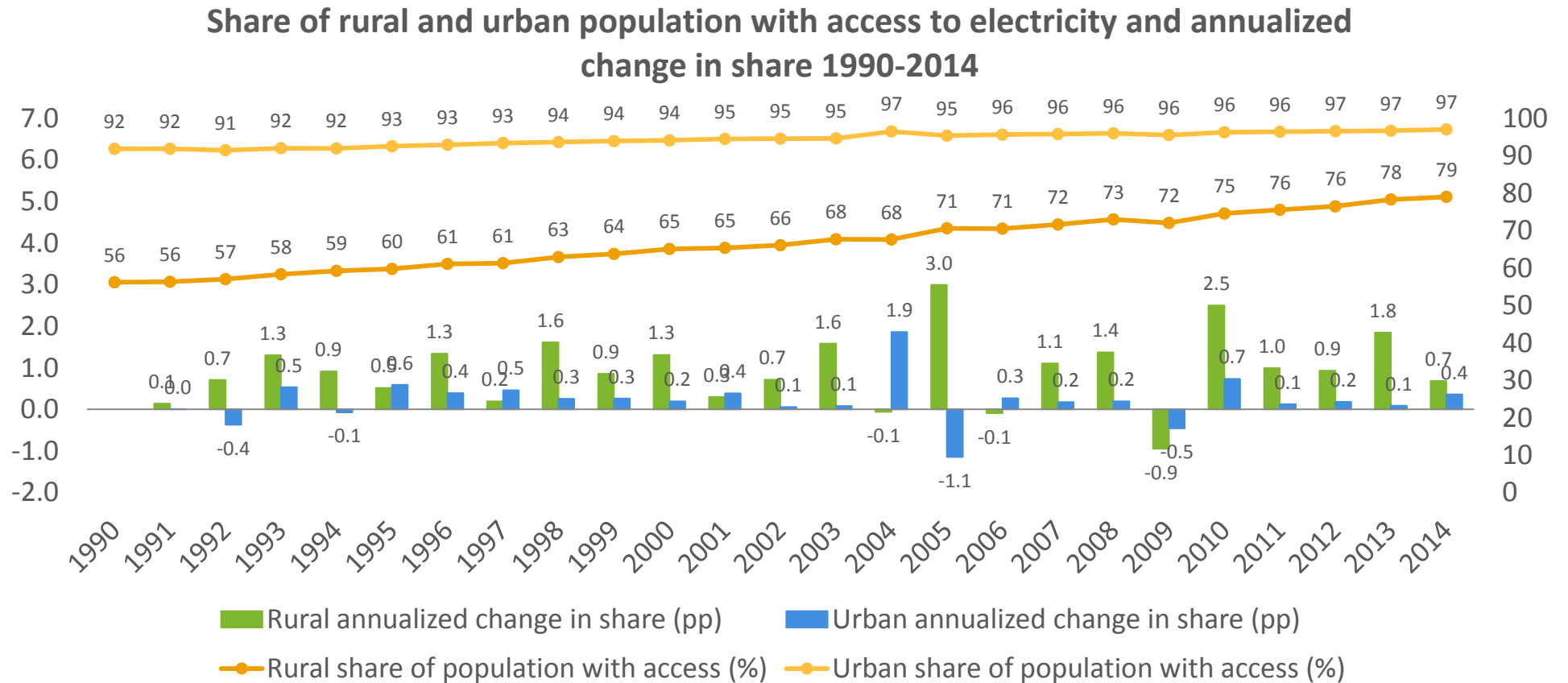
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Trend 2: A wide gap between the Arab Least Developed Countries (LDCs) and "the Rest"



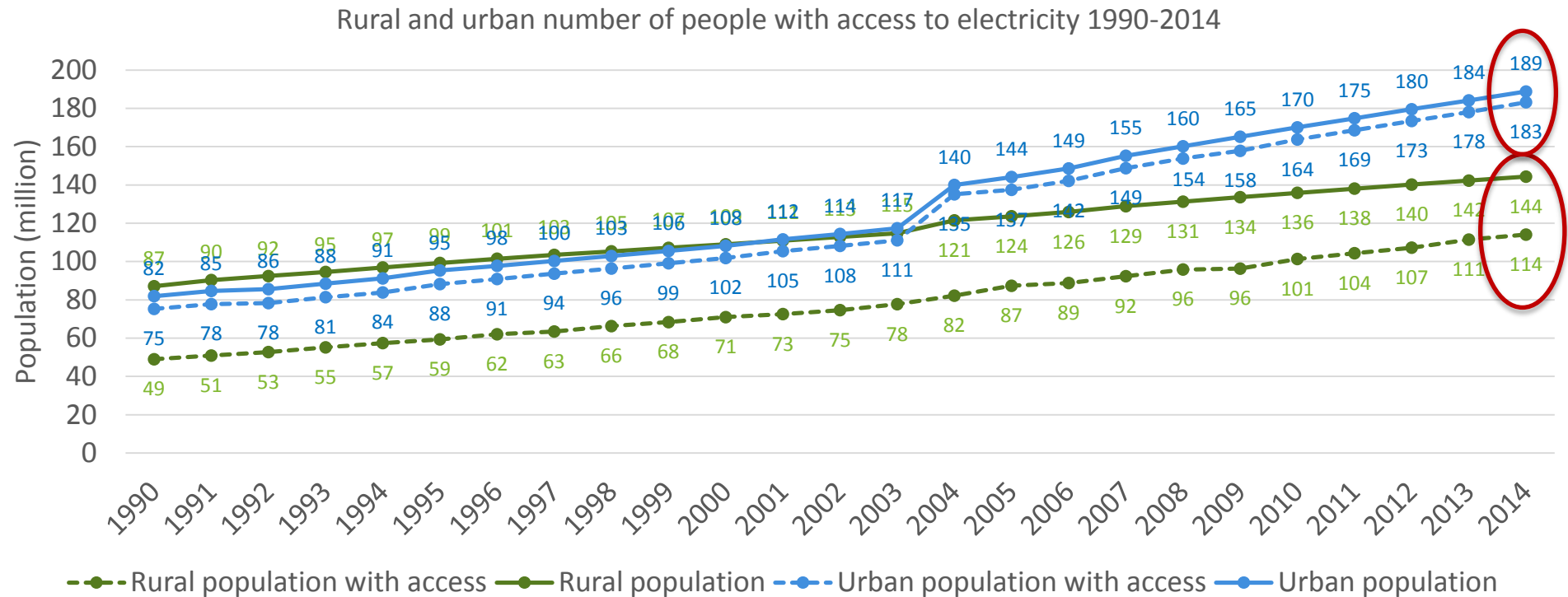
1. Energy Access (EA) in the Arab Region - Electrification

Trend 3: A considerable urban-rural divide in electricity access



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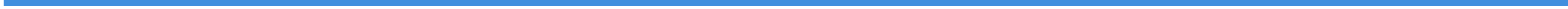
Trend 3: A considerable urban-rural divide in electricity access



6 million urban versus 30 million rural access gap

Questions for further discussion

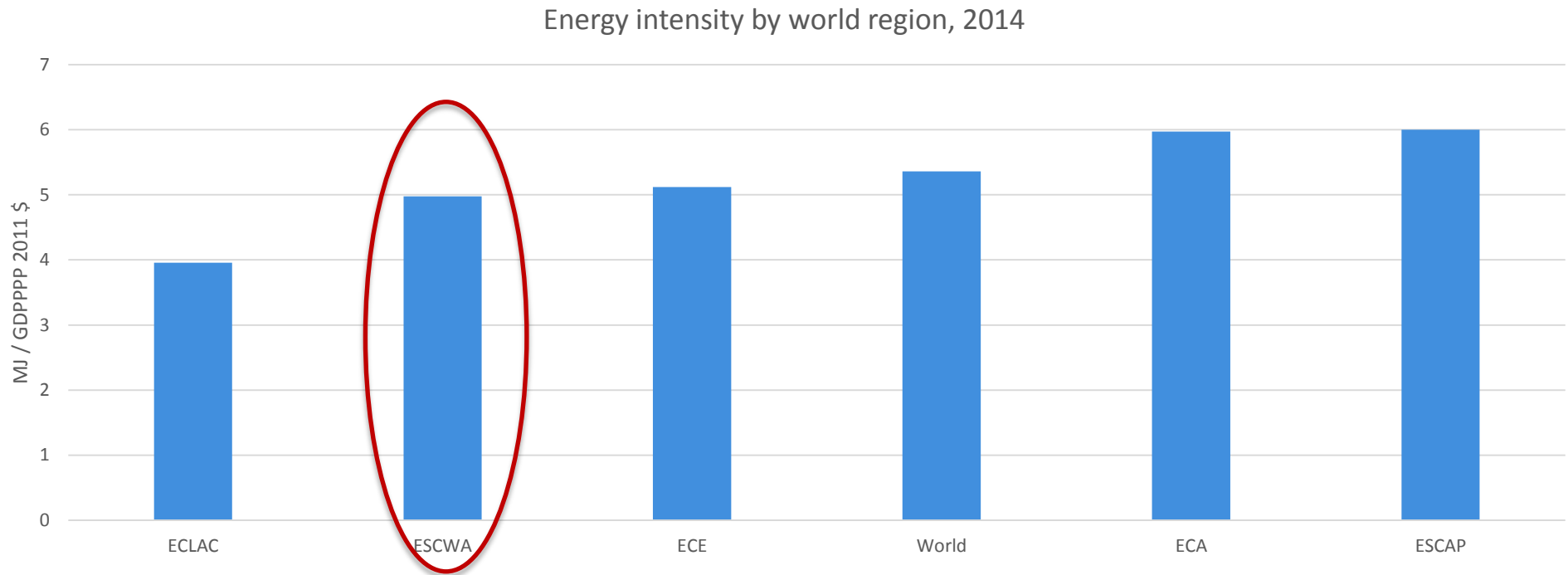
- ❑ What are the **challenges** in making modern energy access a universal good?
- ❑ For countries with incomplete access, what have been past **success factors** in raising access to electricity and CFTs?
- ❑ Are there avenues **for cross-regional cooperation** in terms of technology transfer, capacity building and flexible financing schemes?
- ❑ What impact have **conflict and political instability** had on energy access, and the quality of access over the racking period 2012-14?
- ❑ Is there **Data Reporting Census** at the Country level, data sources and major challenges for data shortcoming?



2. Energy Efficiency in the Arab Region

Energy Efficiency in the Arab Region

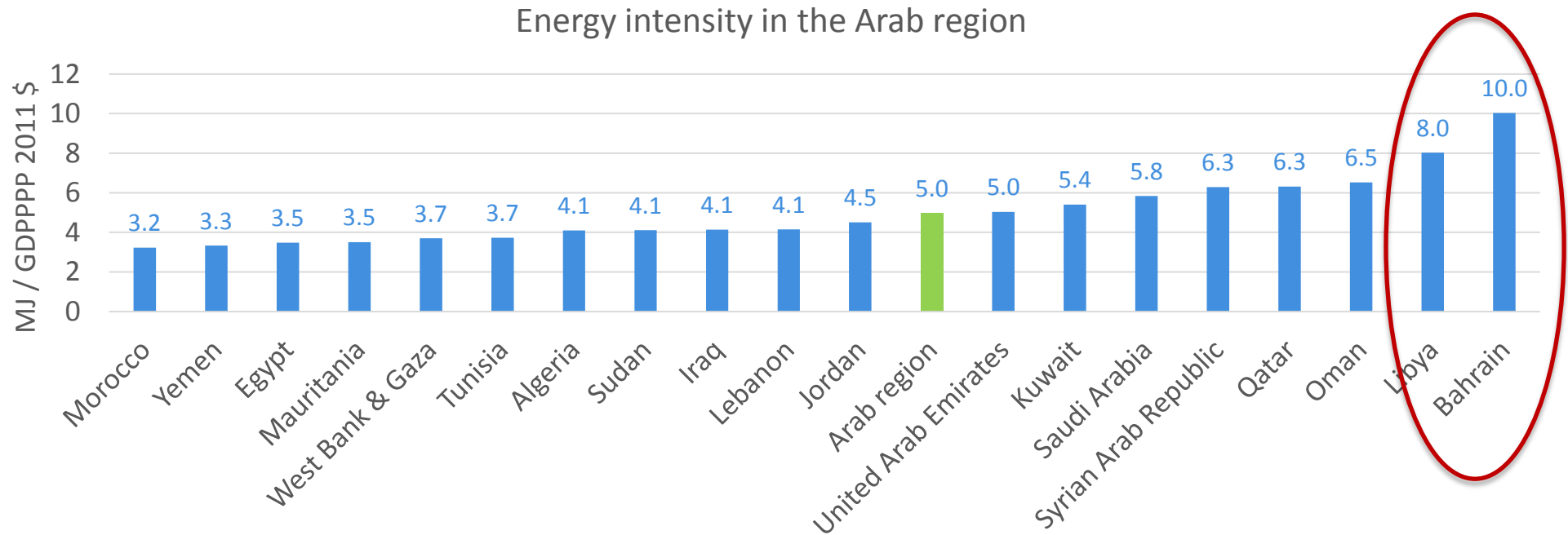
Trend 1: Energy intensity in the Arab region – a mixed bag



By aggregate comparison, the Arab region's energy intensity level lies between the most and the least energy-intensive world regions.

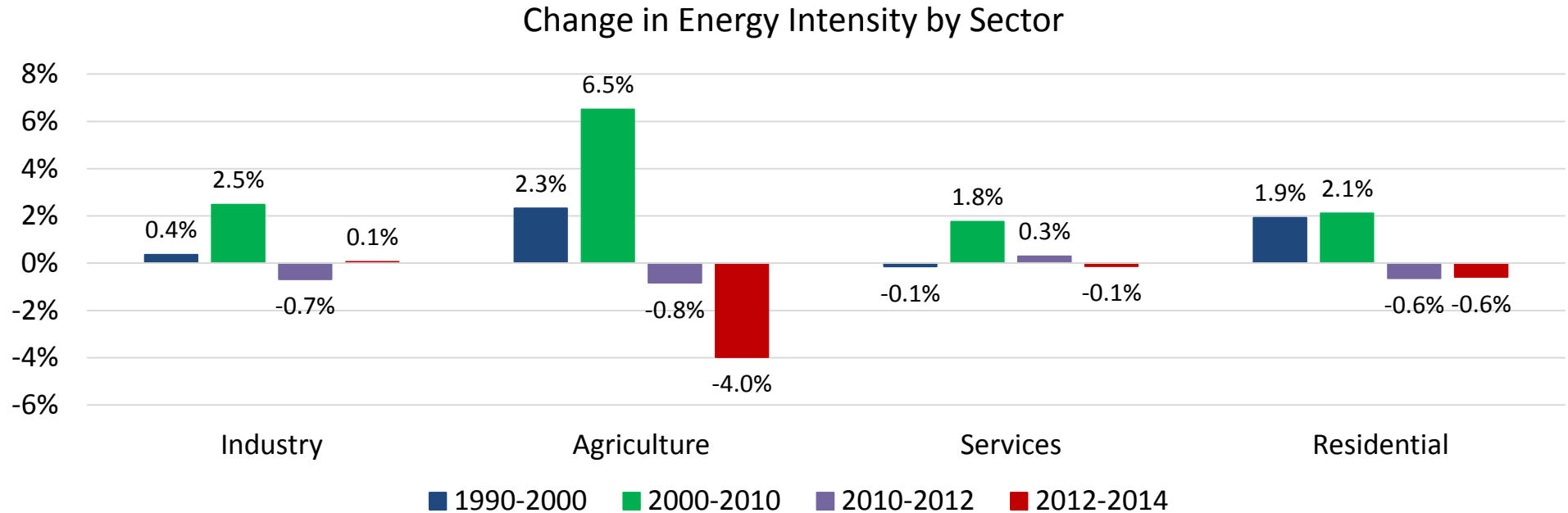
Energy Efficiency in the Arab Region

Trend 1: Energy intensity in the Arab region – a mixed bag



On a country-by-country level, the Arab region includes a range of very different economies, from low energy intensity to some of the world's highest intensity rates.

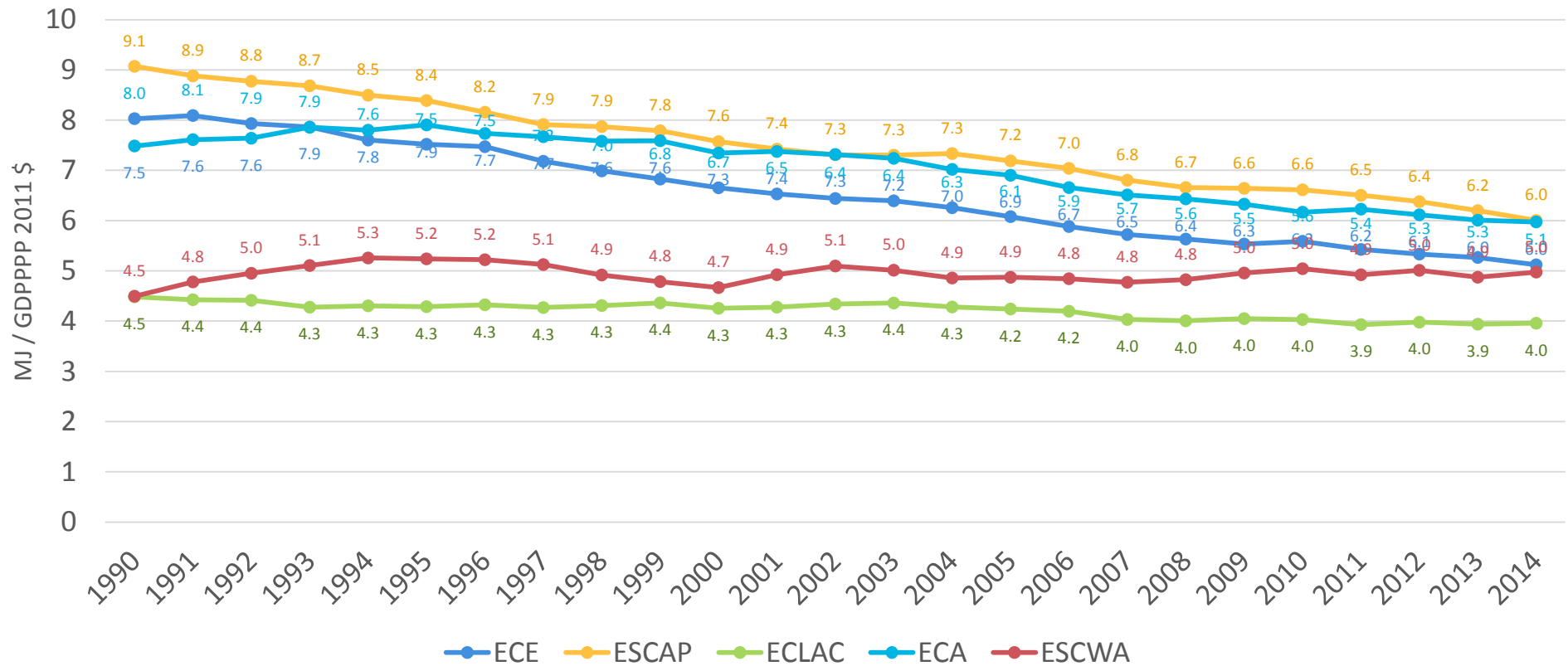
Trend 1: Energy intensity in the Arab region – a mixed bag



A similarly undetermined trend across industries, with what looks like a slight downward trend since 2010.

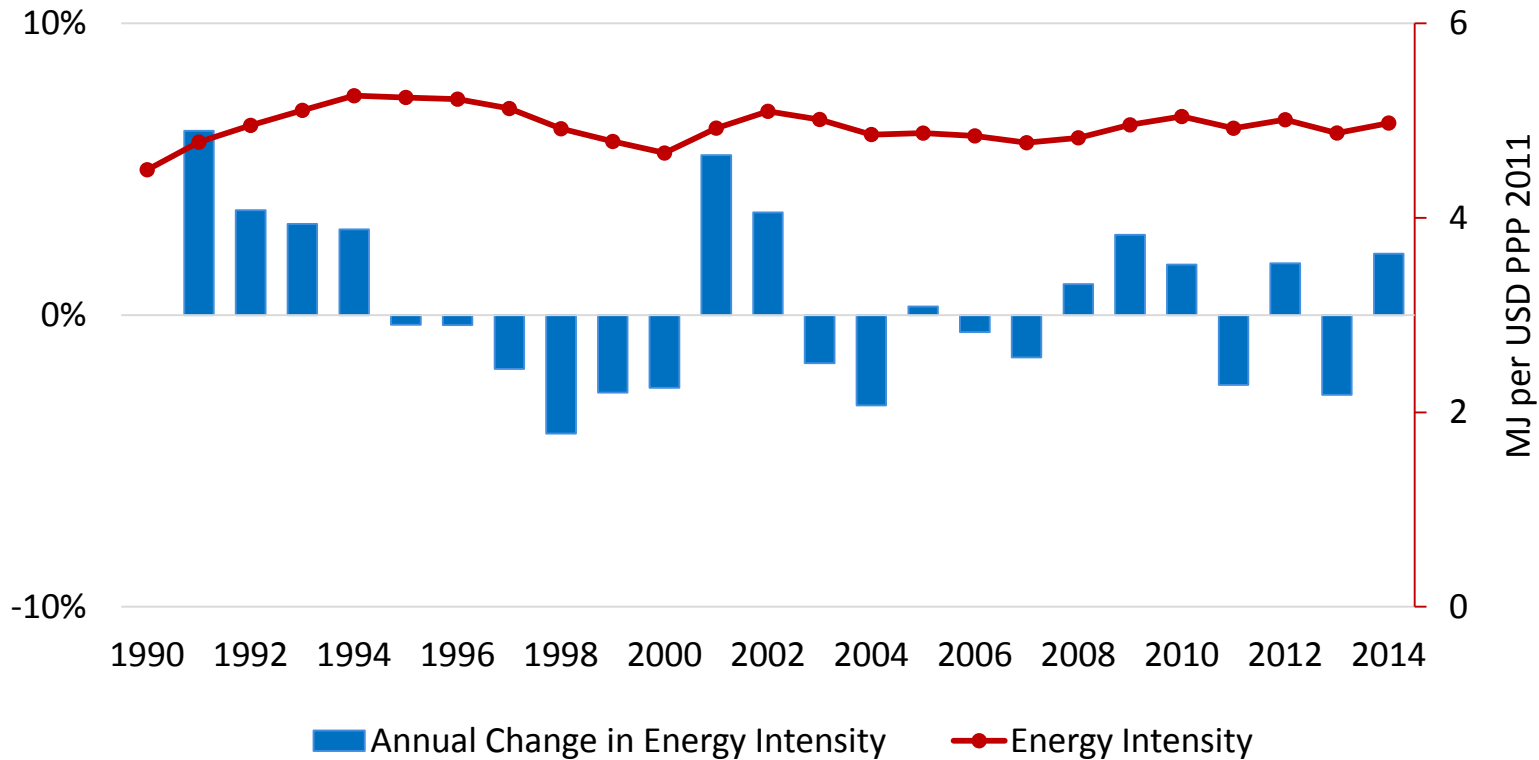
Trend 2: Slow regional progress in energy efficiency

Energy intensity trends by global region, 1990-2014



Trend 2: Slow regional progress in energy efficiency

Energy Intensity in the Arab region

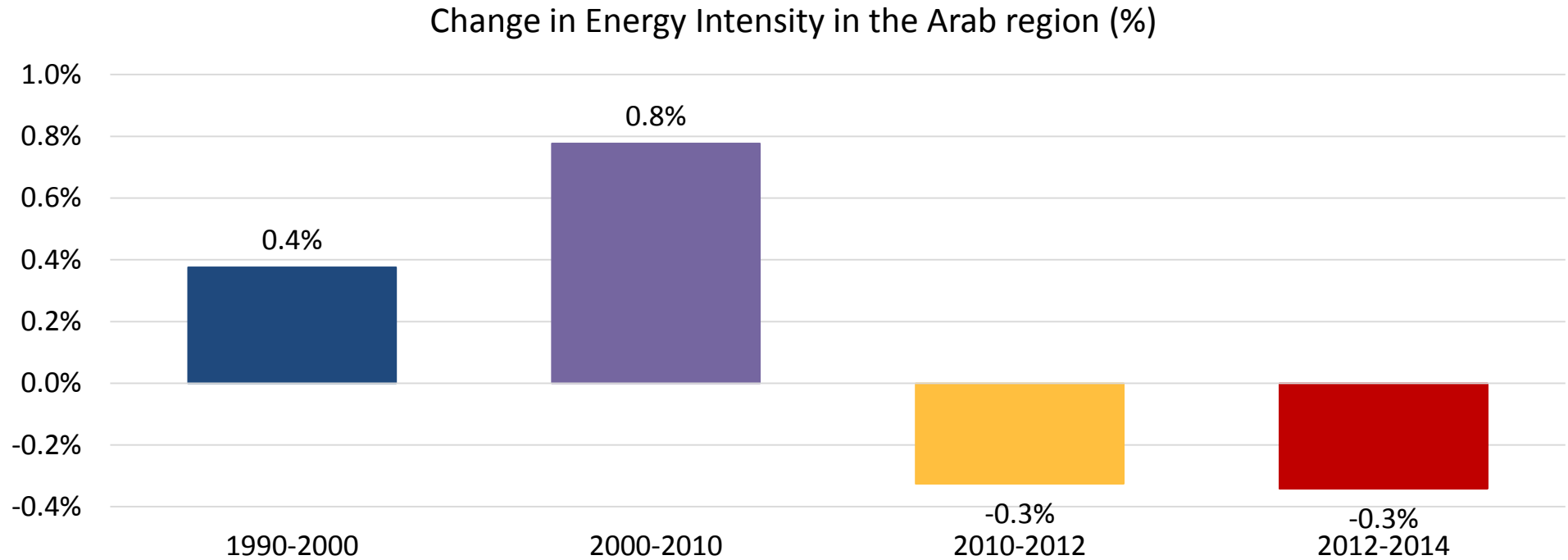


Energy intensity used as a proxy for energy efficiency

Fluctuating energy intensity as the norm, with no clear regional trend; net-decline 2012-14

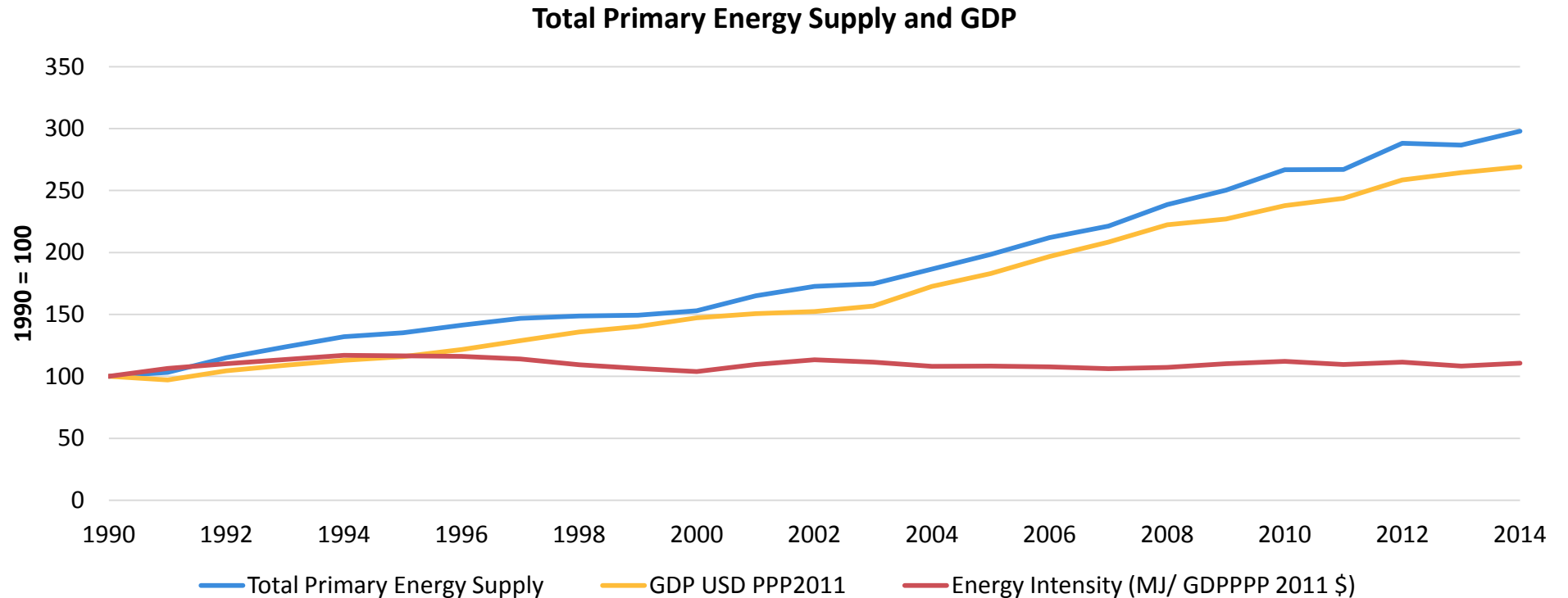
Reasons: fluctuations in GDP, changes in the composition of the economy, climatic effects, other?

Trend 2: Slow regional progress in energy efficiency



On a bi-annual trend energy intensity looks to be declining since 2010. Is this the beginning of a downward trend in regional energy intensity?

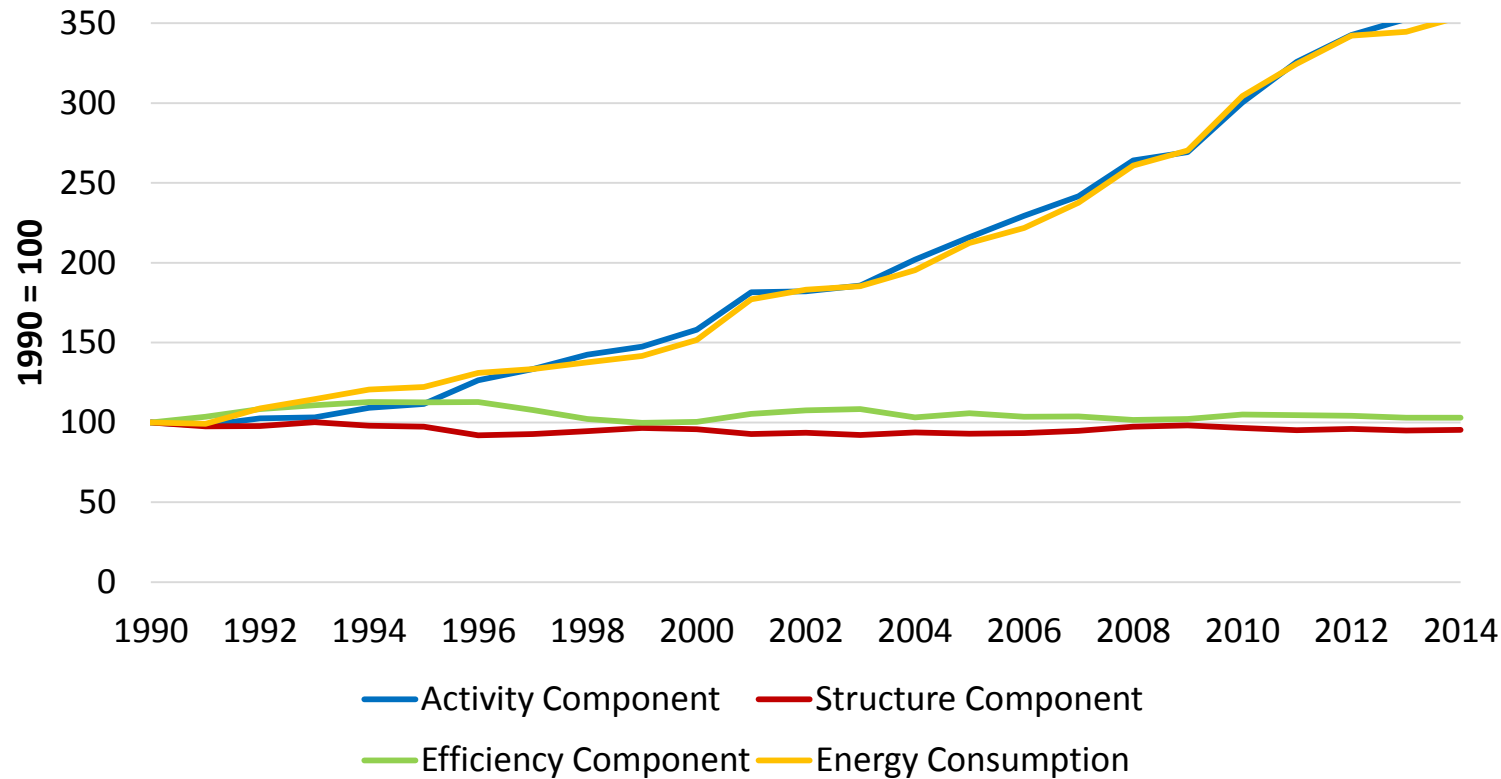
Trend 2: Slow regional progress in energy efficiency



Very slow (if any) decoupling of TPES and GDP growth at regional level

Trend 2: Slow regional progress in energy efficiency

Decomposition analysis for the Arab region

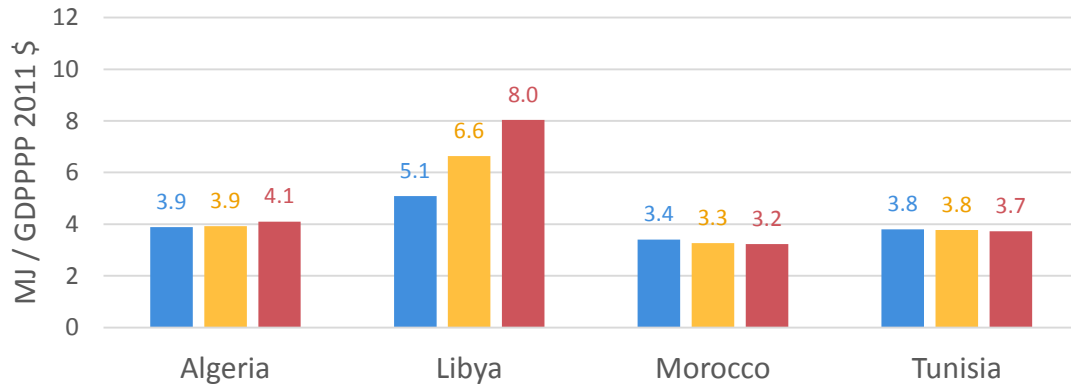


- Limited regional progress in increasing energy efficiency have hence been more than offset by growing economic activity
- Since 2010, the intensity component has remained virtually flat, indicating no progress over the tracking period
- With the exception of the global economic slowdown 2008-2009, the growth of economic activity has exerted a consistent upward pull on energy demand

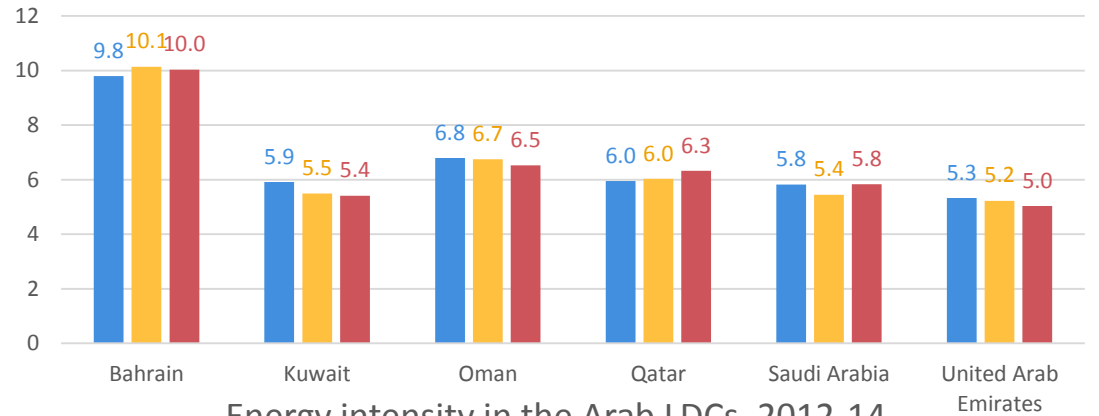
Energy Efficiency in the Arab Region

Trend 2: Slow regional progress in energy efficiency

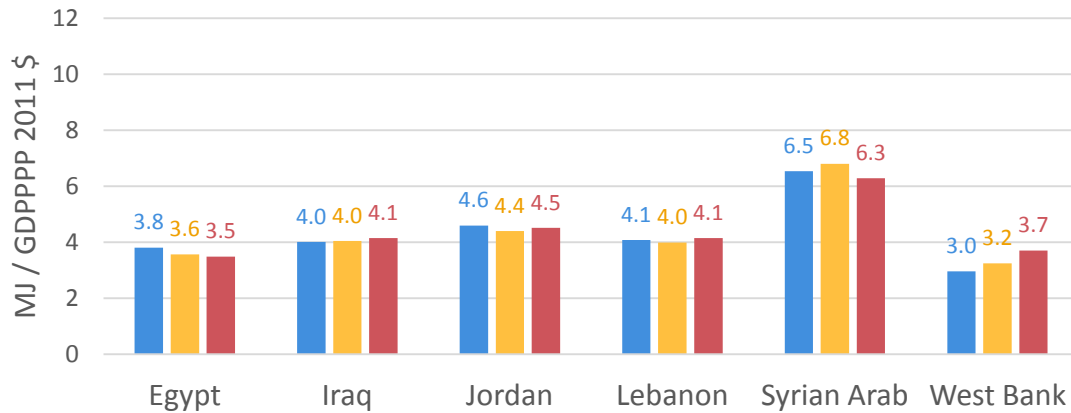
Energy intensity in North Africa, 2012-14



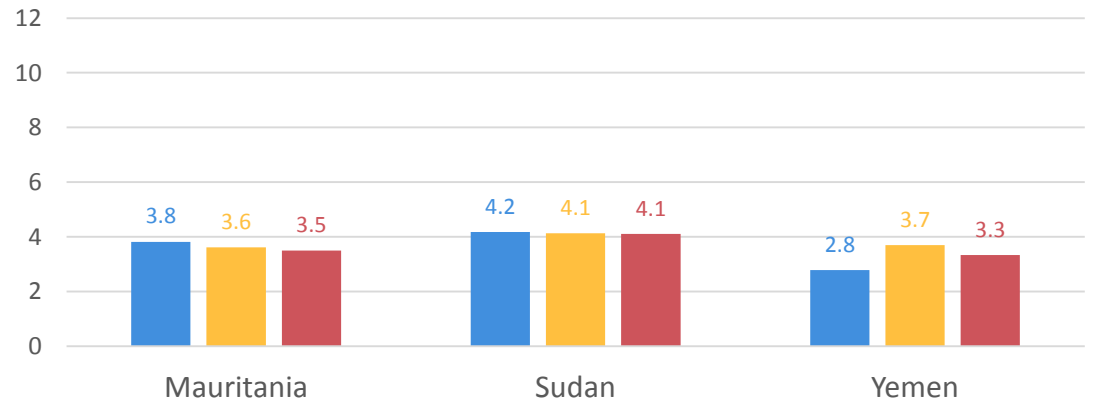
Energy intensity in the GCC, 2012-14



Energy intensity in the Mashreq, 2012-14



Energy intensity in the Arab LDCs, 2012-14



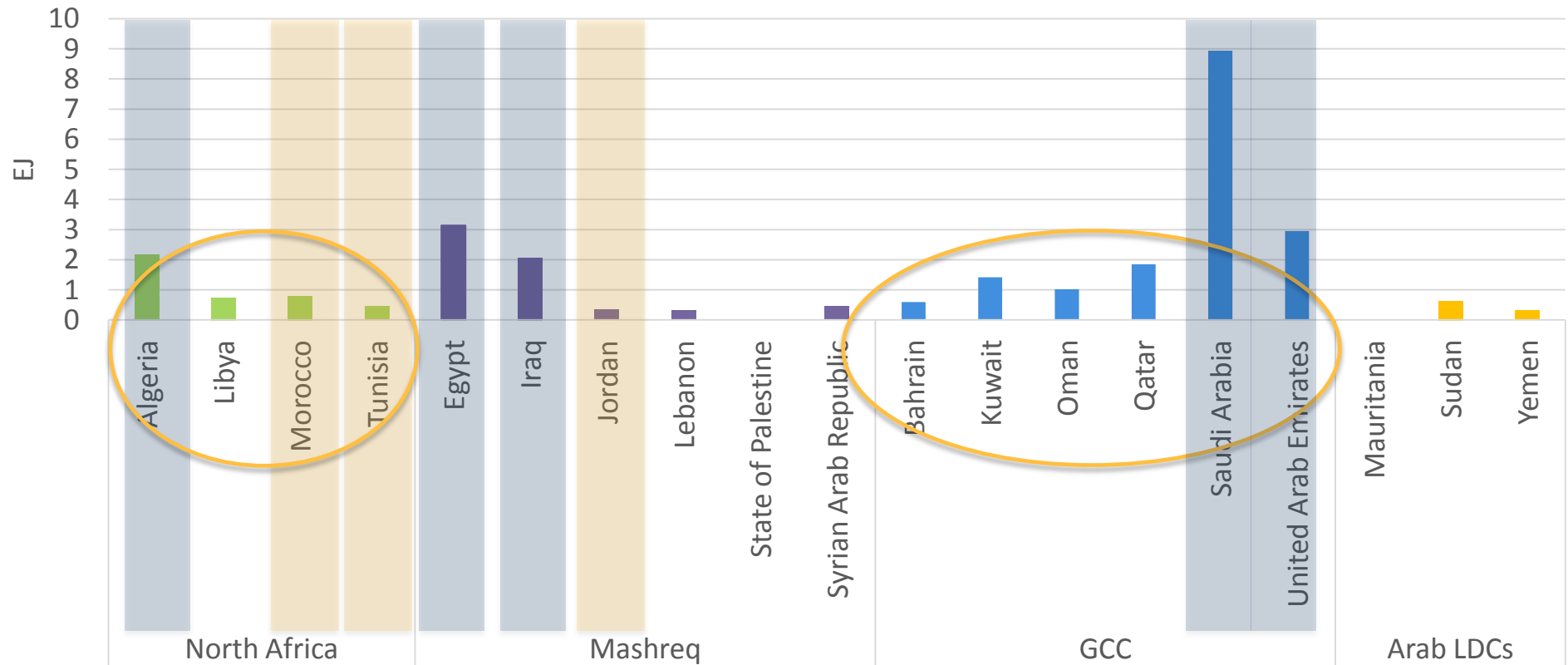
Who could be regional game changers?

Large energy consumers

Energy import-dependent states

Sub-regional trending and economies of scale

Total Primary Energy Supply (TPES) in the Arab region, 2014



Questions for further discussion

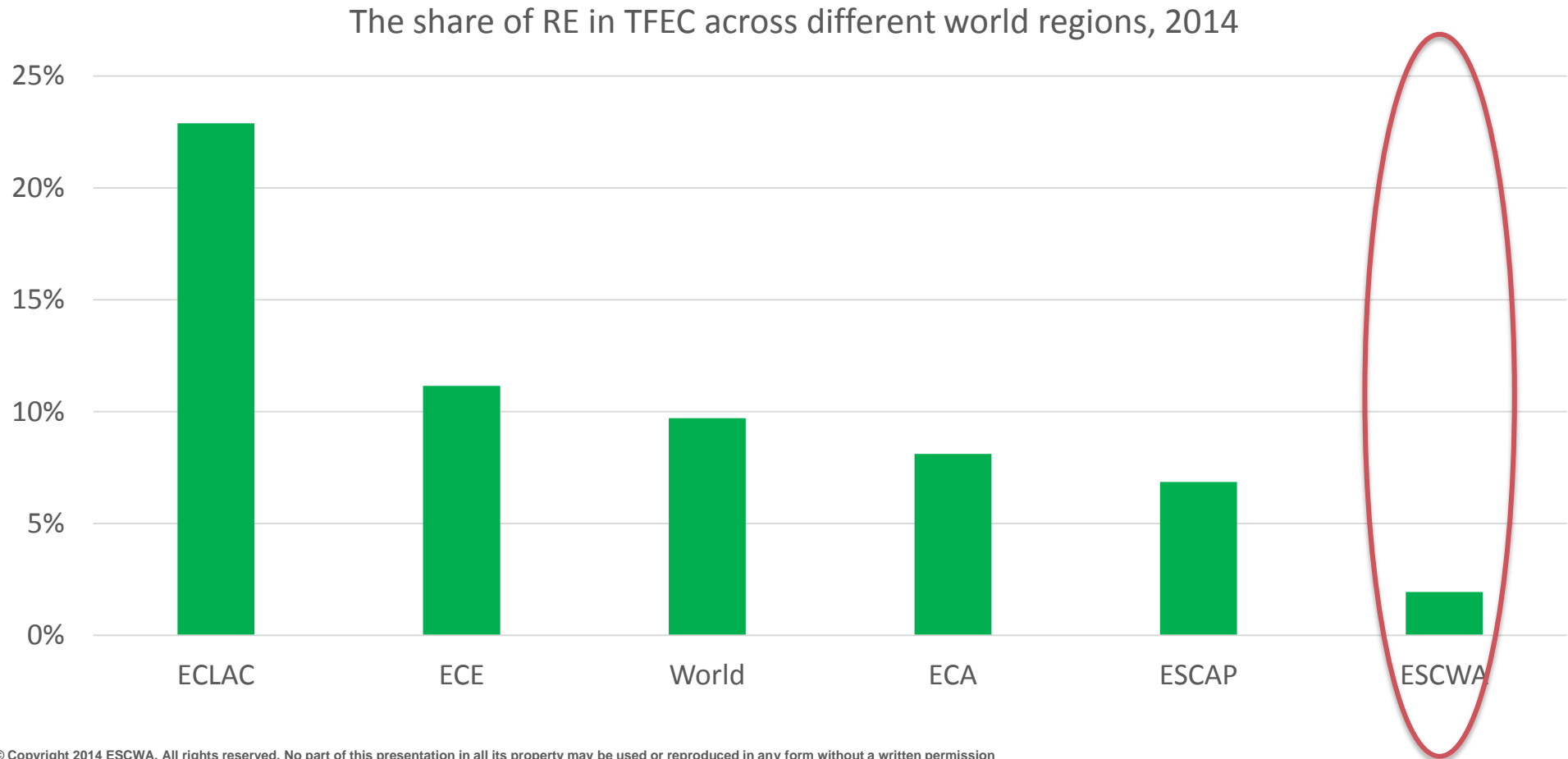
- What are the key areas for energy efficiency improvements by sector in the Arab region?
- What are the main challenges that have kept regional economies from realizing EE gains?
- Have international programmes been effective in helping countries increase their EE?
- Are there specific regional patterns of development that could be addressed at regional level to help increase the rate of EE investments and savings?
- Is there Data Reporting Census at the Country level, data sources and major challenges for data shortcoming?



3. Renewable Energy in the Arab Region

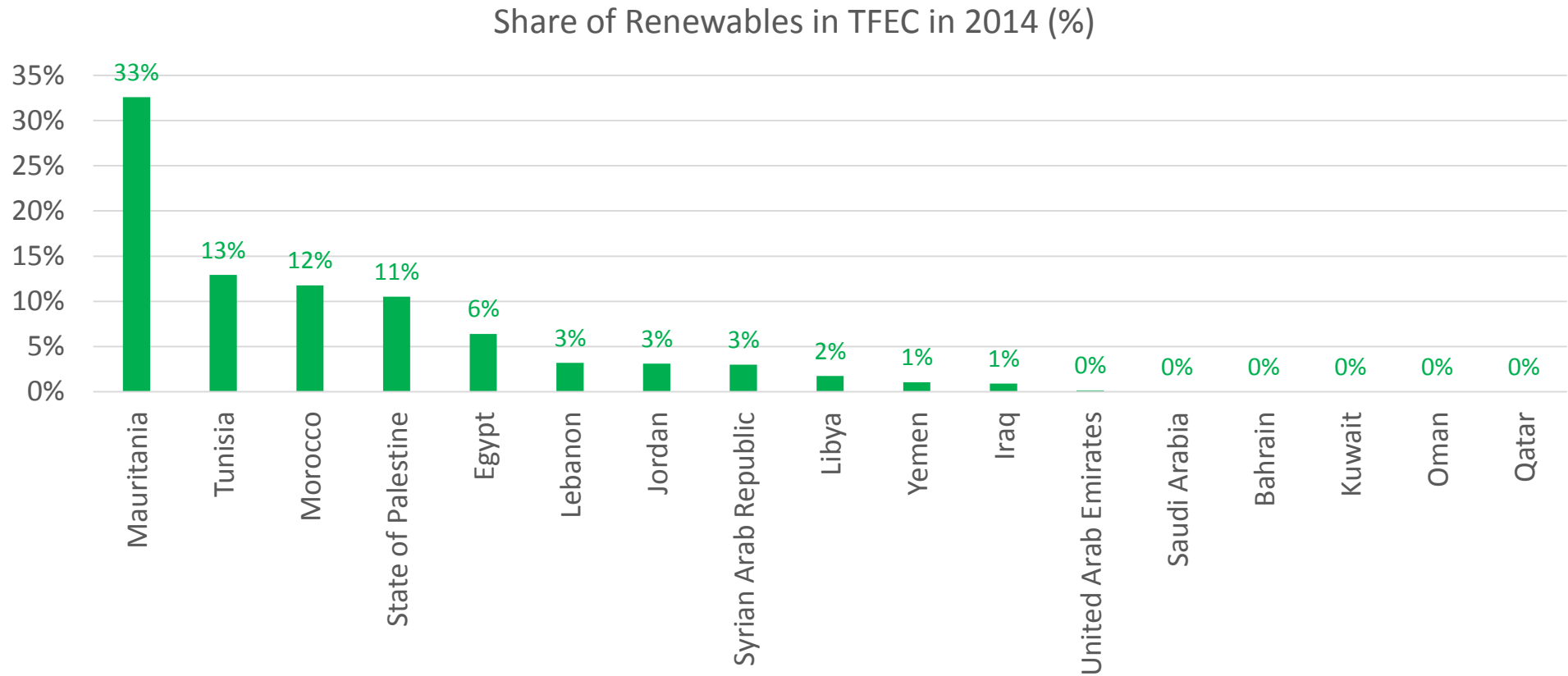
Renewable Energy in the Arab Region

Trend 1: A very low reach of renewable energy across the region's energy mix



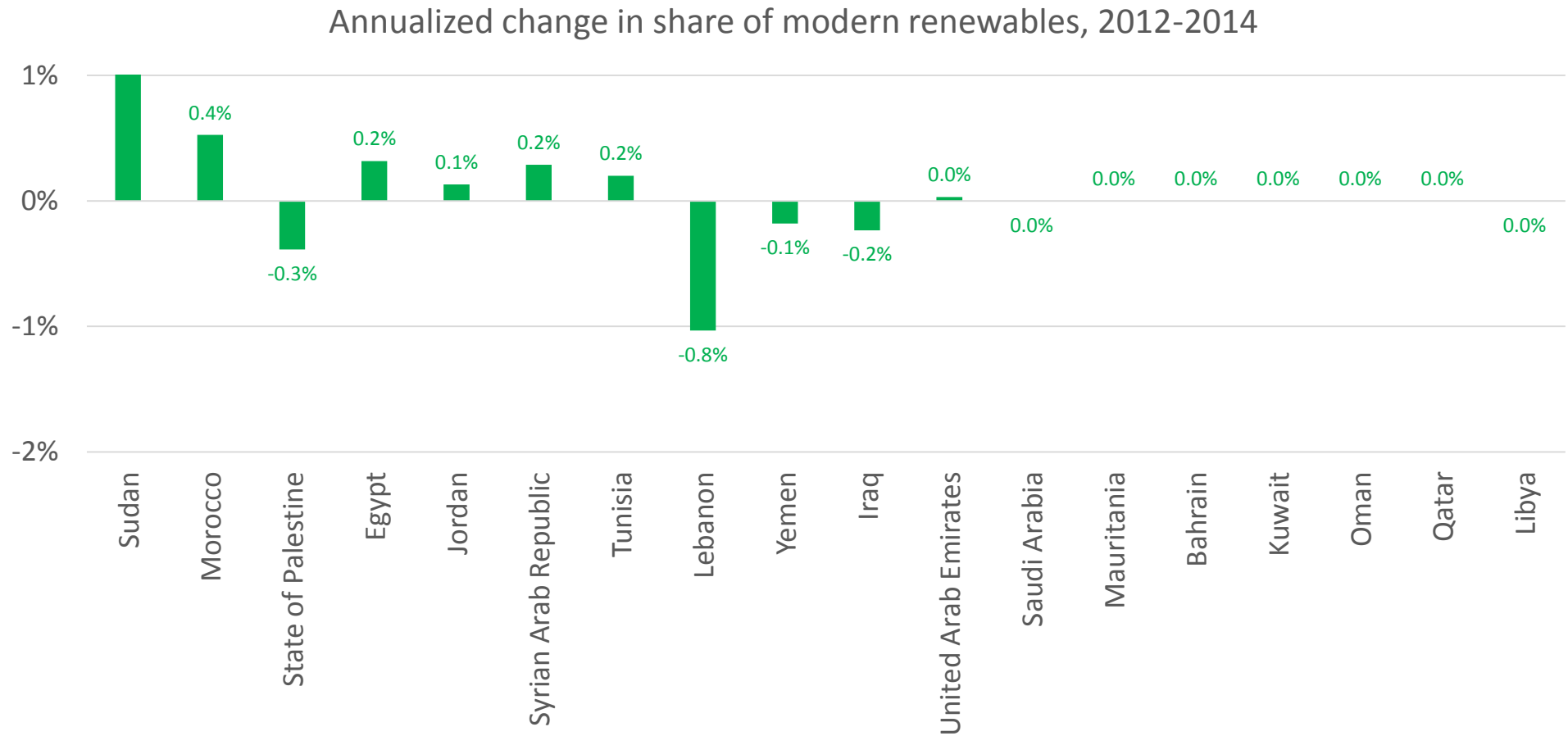
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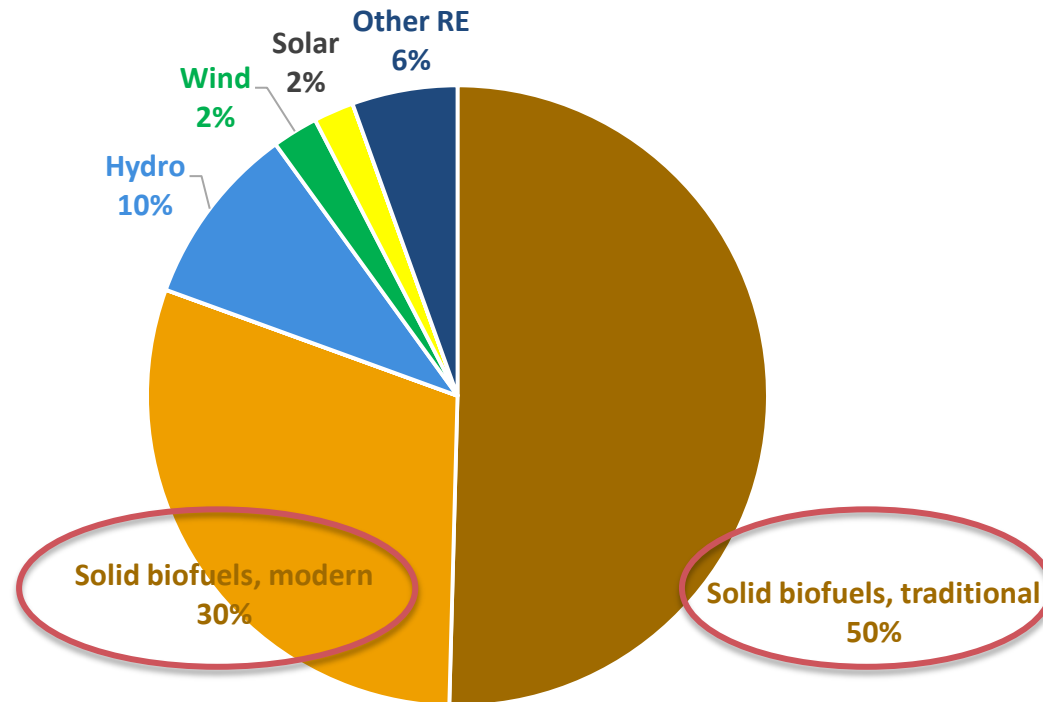
Renewable Energy in the Arab Region

Trend 1: A very low reach of renewable energy across the region's energy mix



Trend 2: Biomass dominates the Arab region's RE mix

Final renewable energy consumption in the ESCWA region, 2014

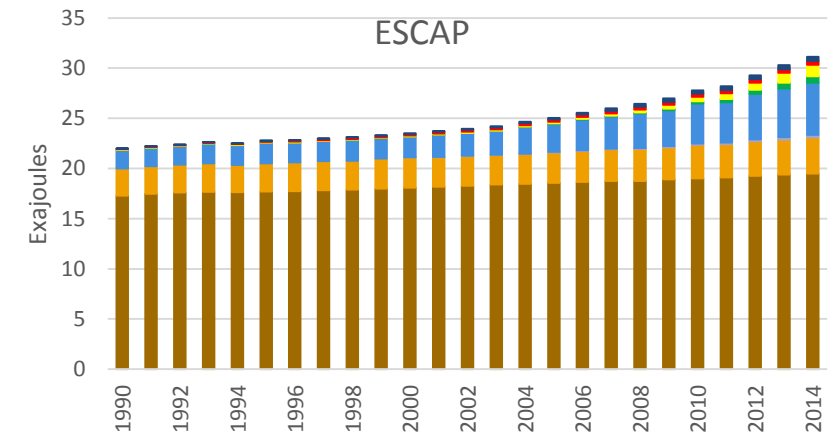
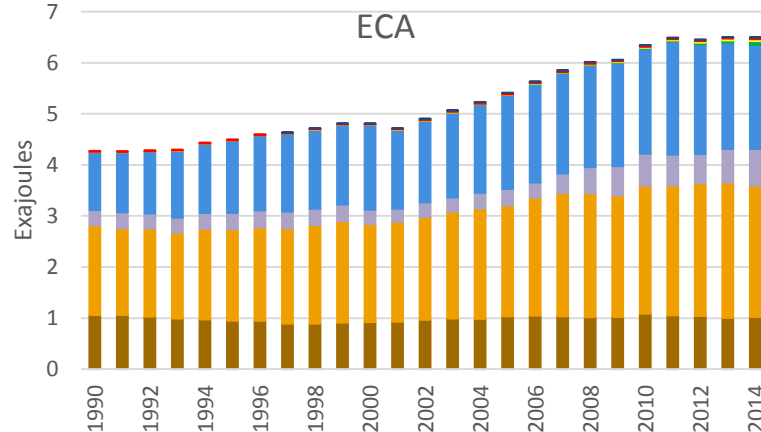
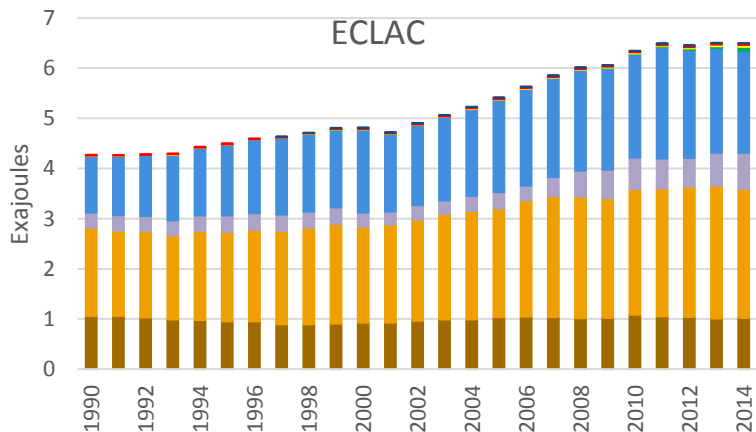
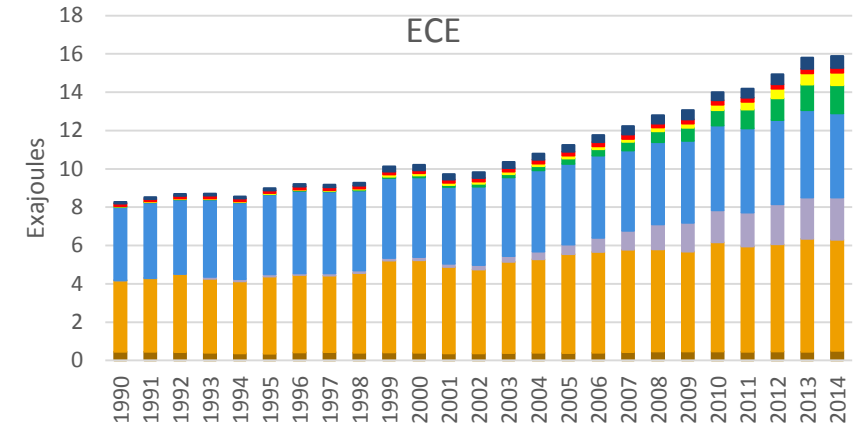
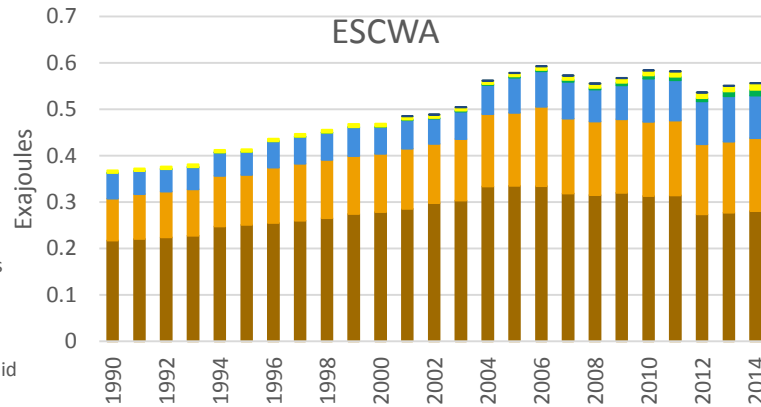
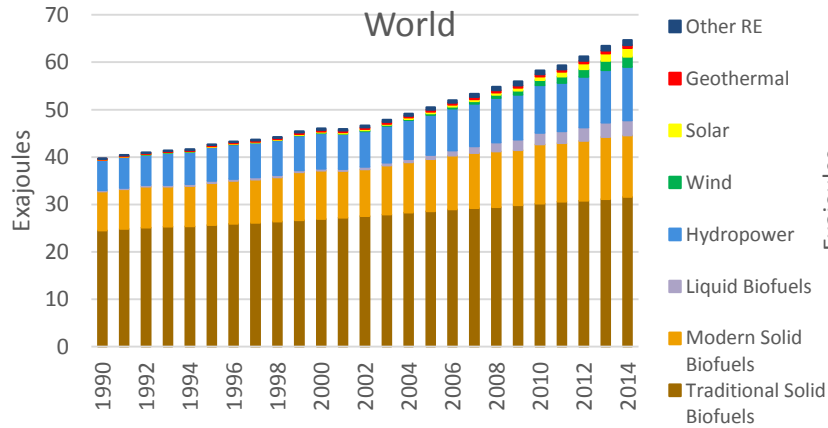


RE consumption in the Arab region

- 80% biomass
- > 50% traditional biomass

Renewable Energy in the Arab Region

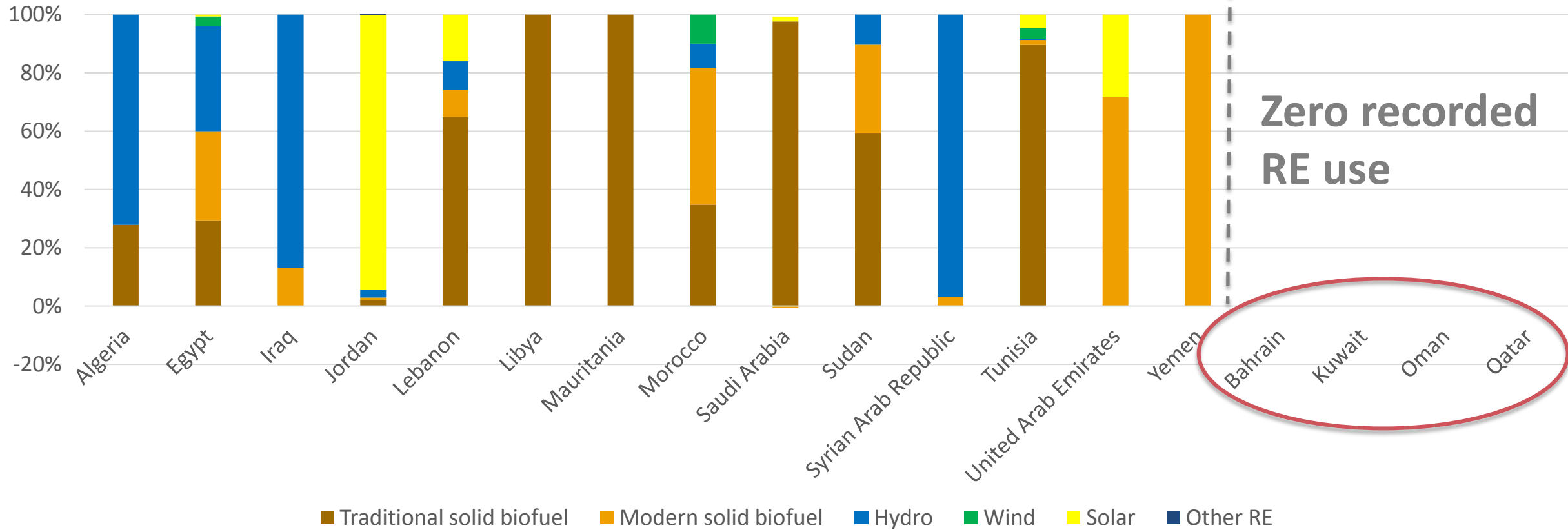
Trend 2: Biomass dominates the Arab region's RE mix



Renewable Energy in the Arab Region

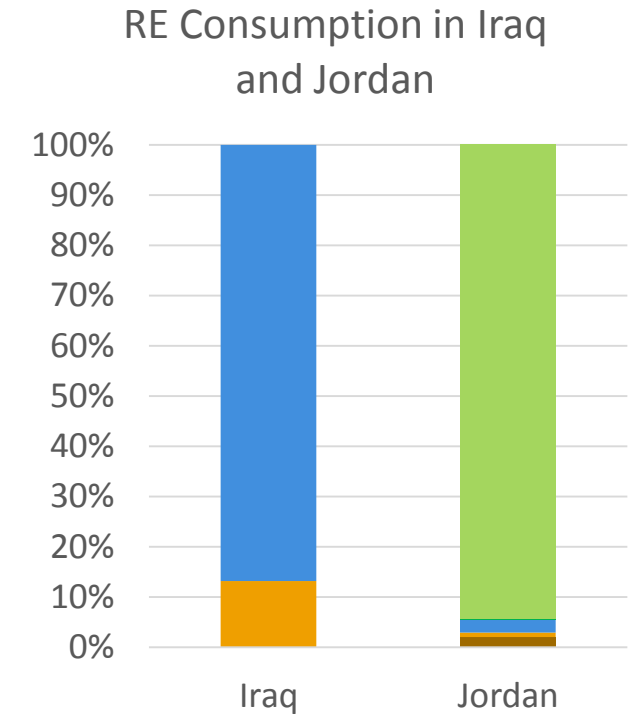
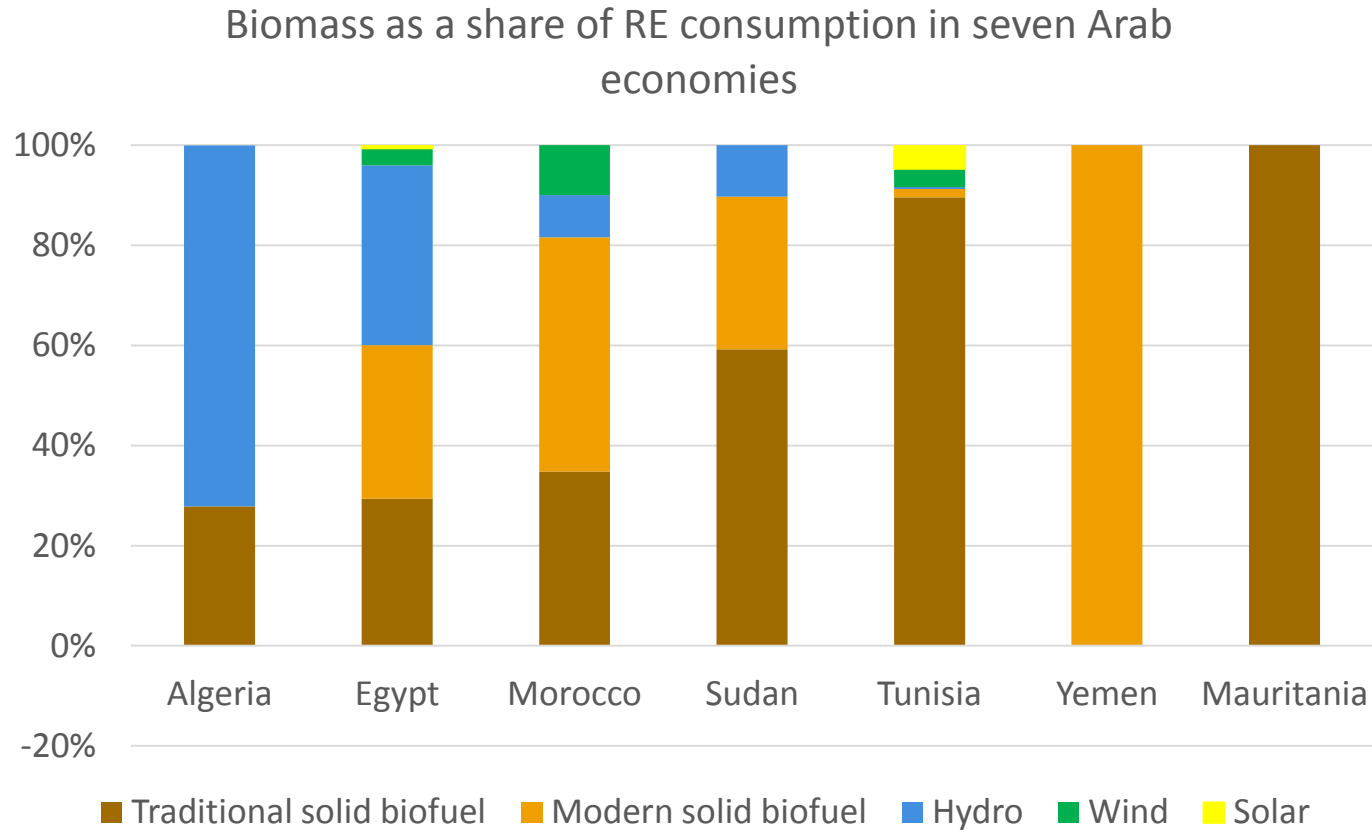
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Biomass as a share of RE consumption in the Arab region



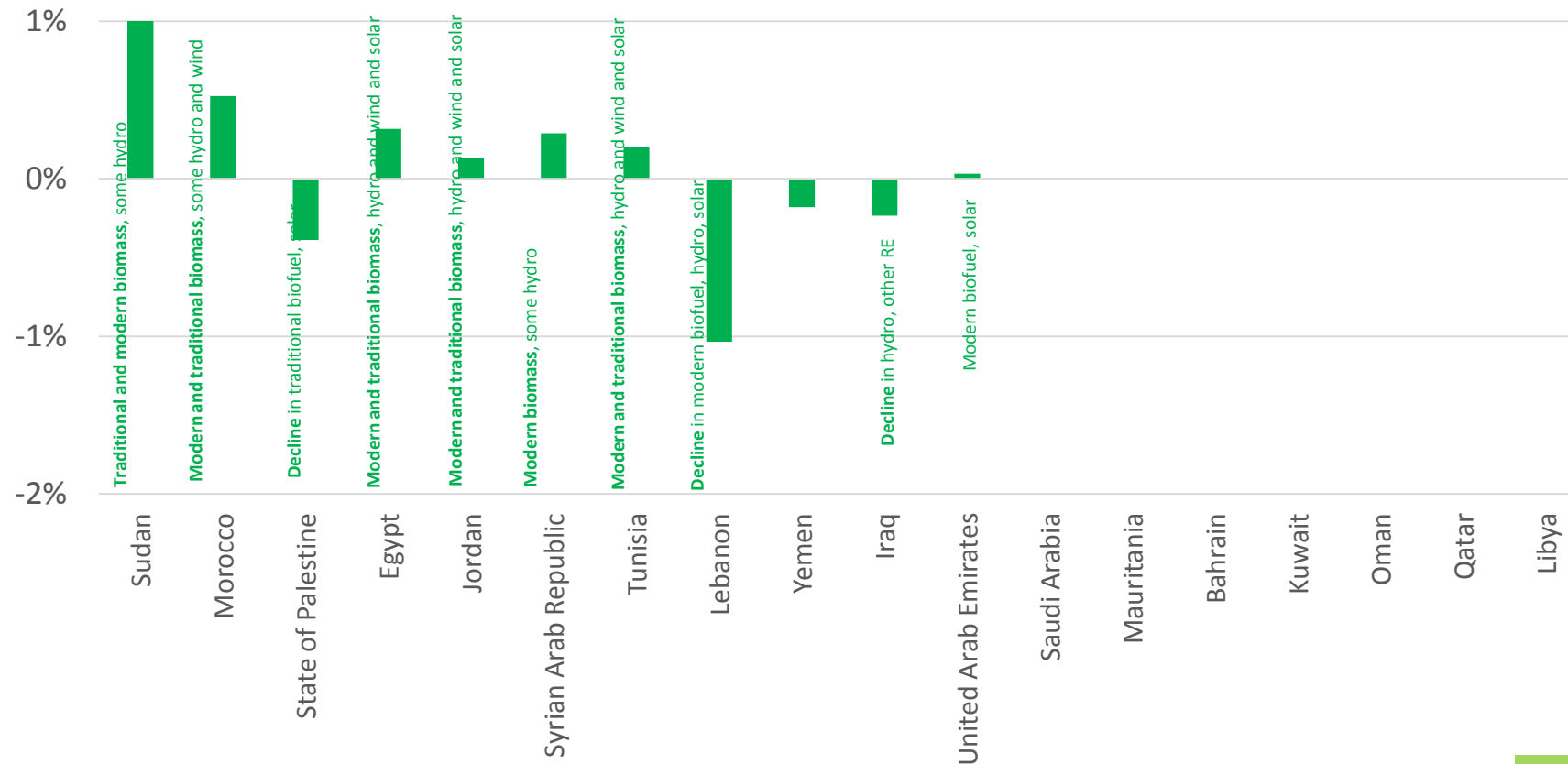
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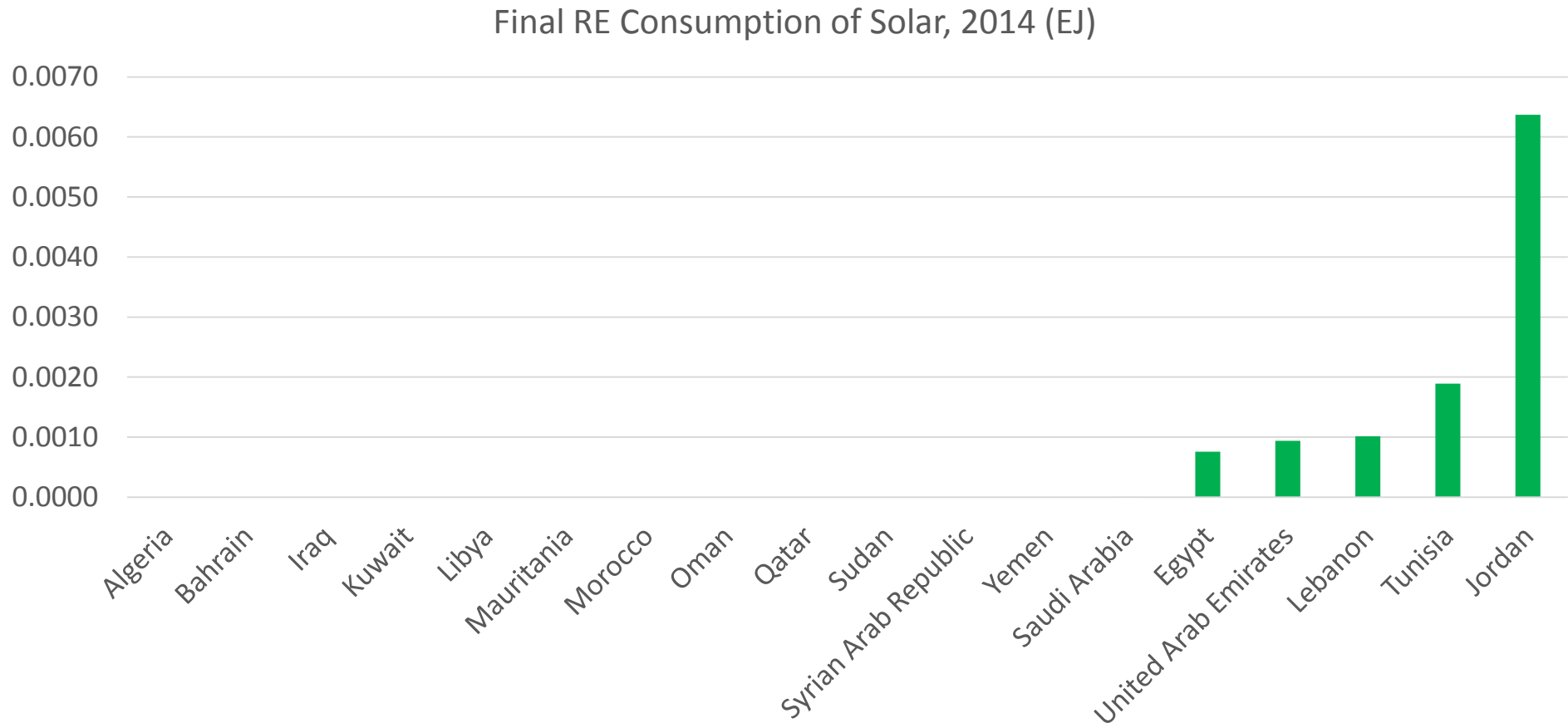
Annualized change in share of modern renewables, 2012-2014



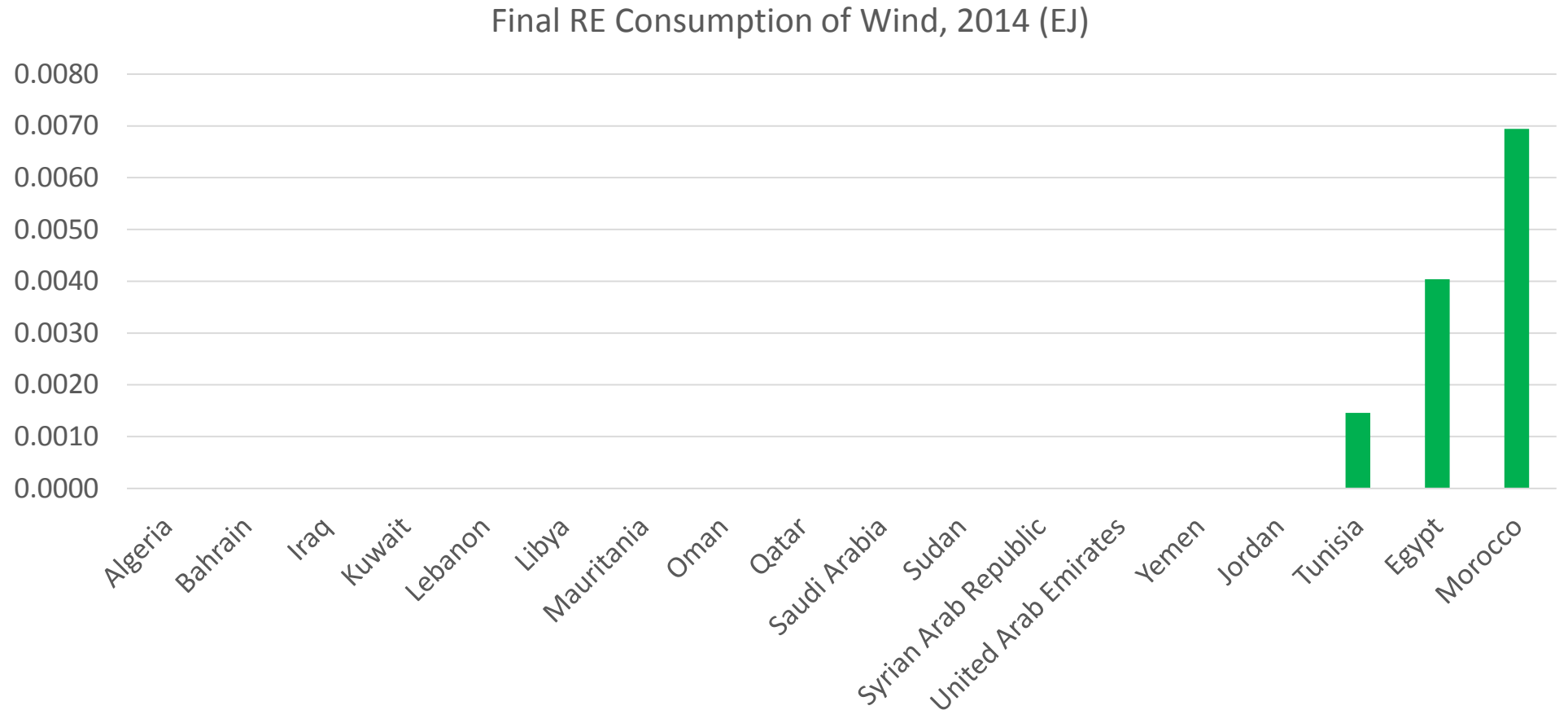
Even where only modern RE is considered, the highest growth in RE consumption as a share of TFE in countries consuming biomass

- Biomass continues to drive scalable increases in RE consumption
- But: a few countries account for most of this growth
- **RE consumption in the Arab region aggregate offers us a problematic measure of RE progress**

Other measures of RE consumption trends

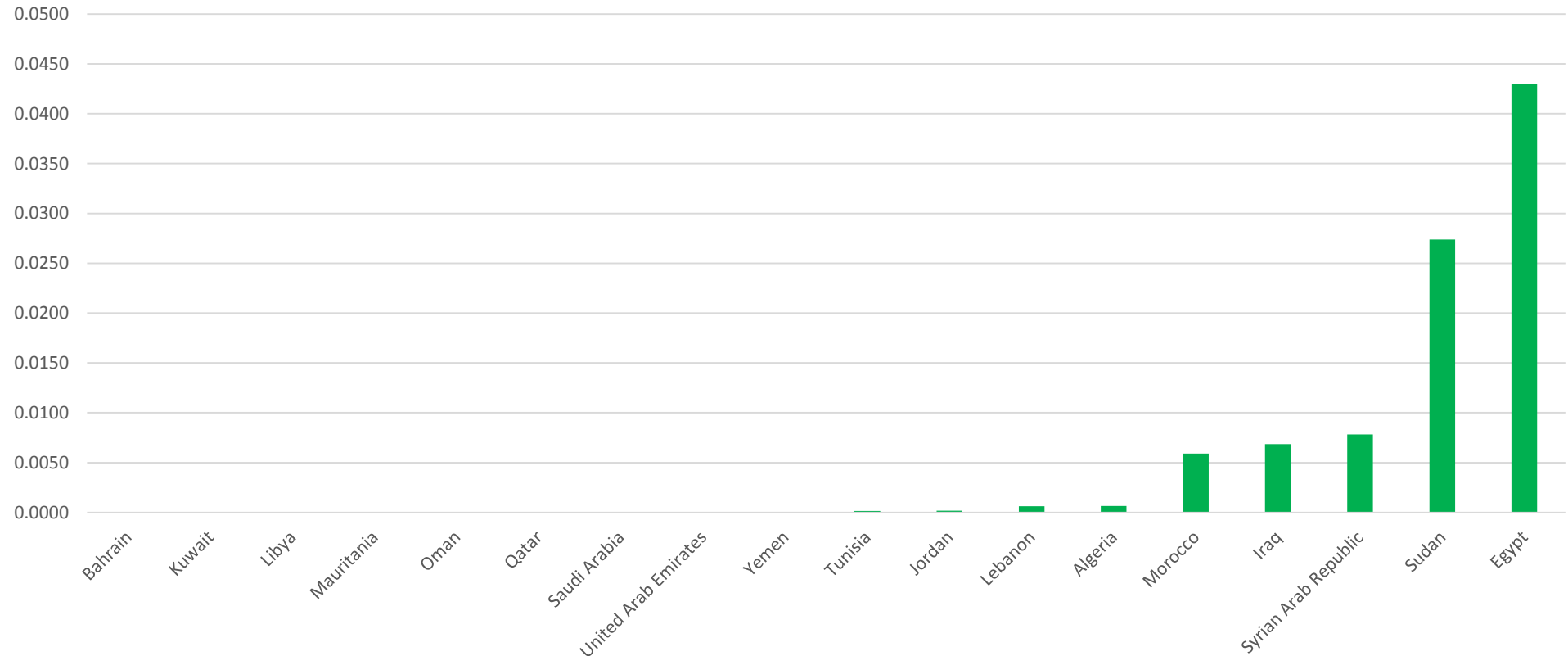


Other measures of RE consumption trends

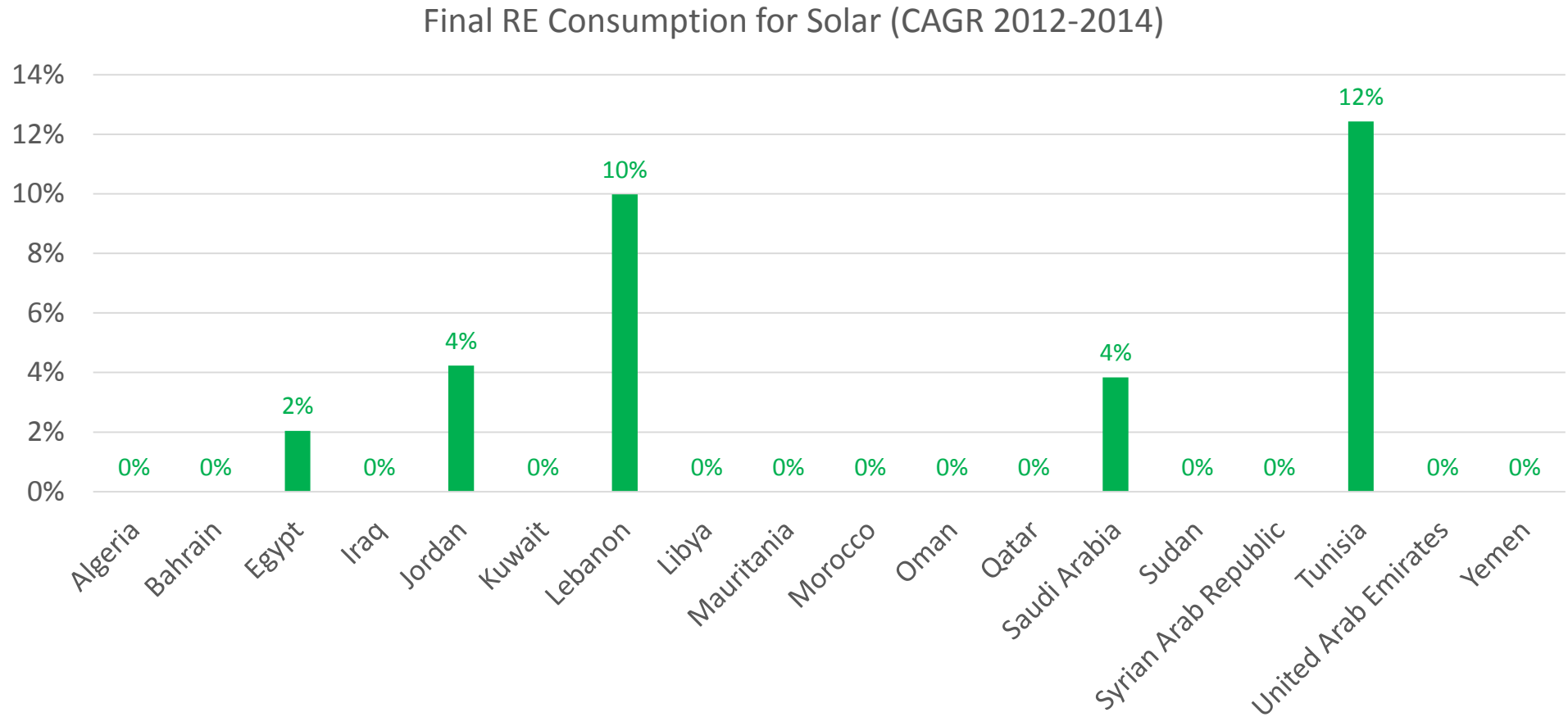


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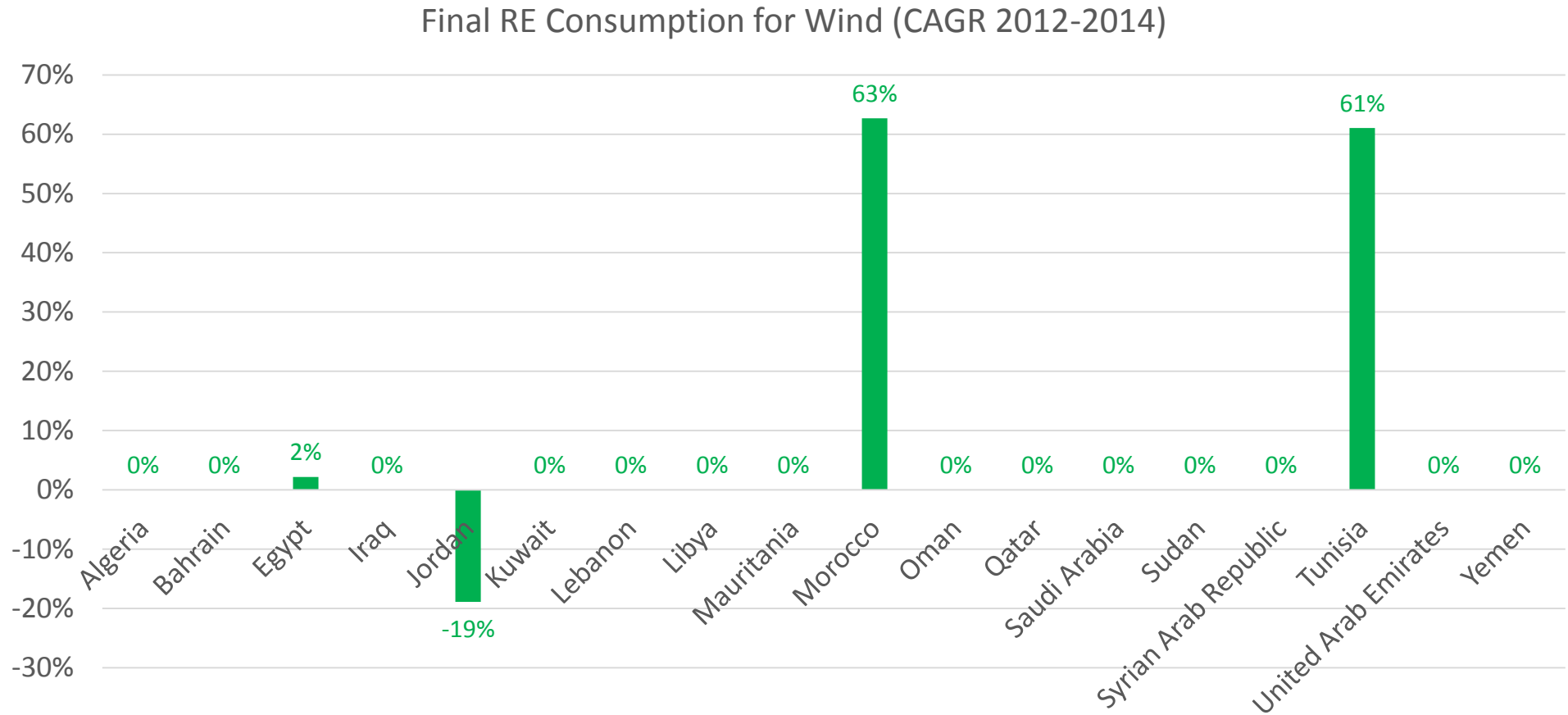
Final RE Consumption of Hydro, 2014 (EJ)



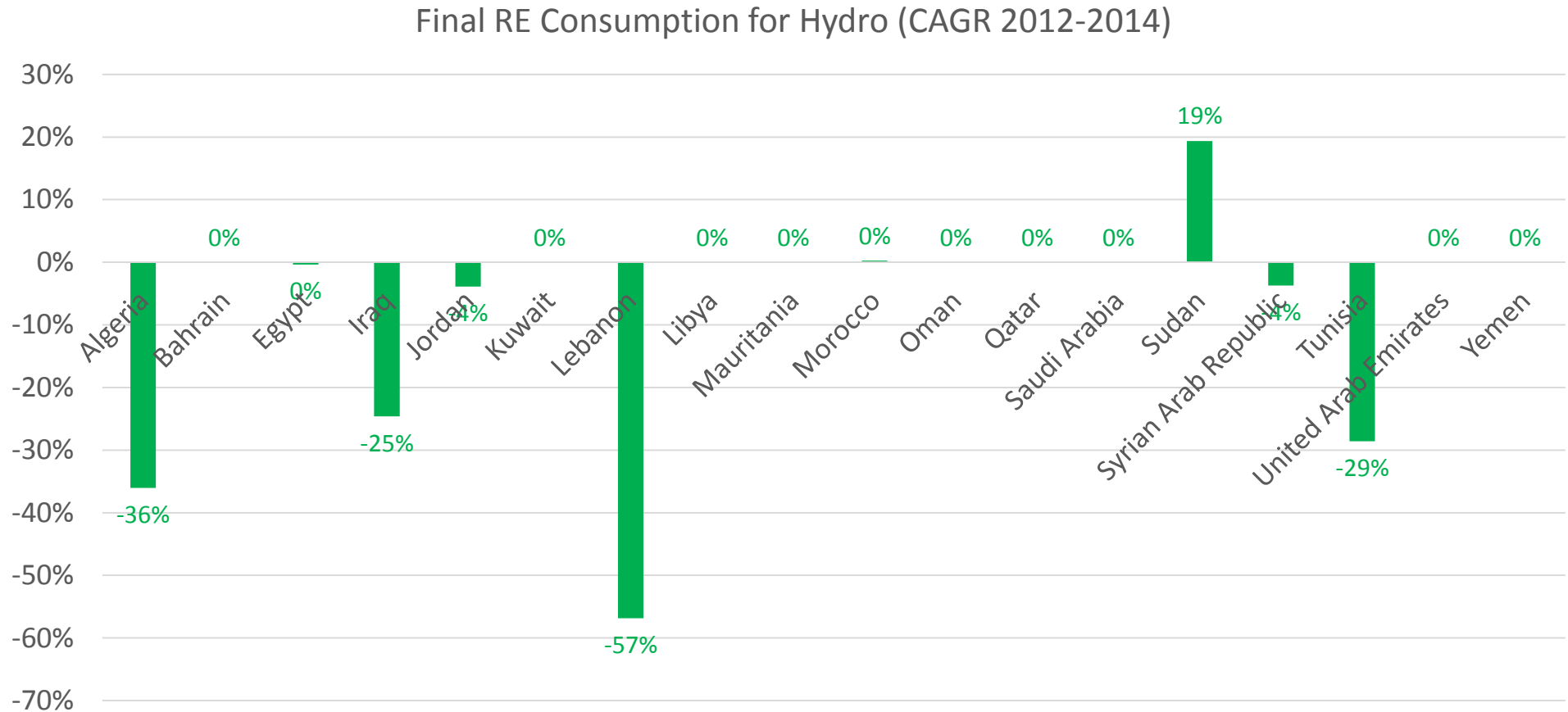
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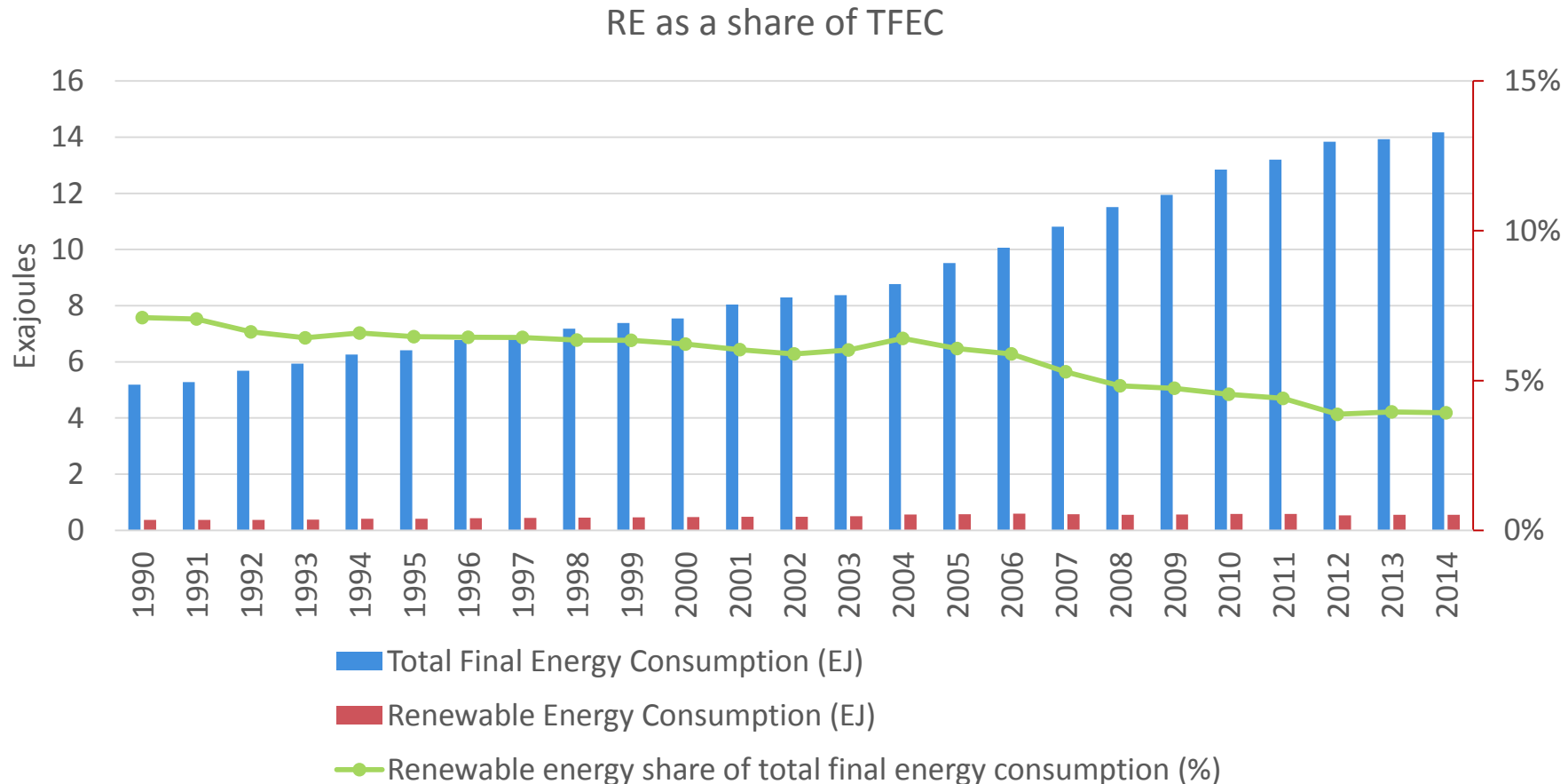
Other measures of RE consumption trends



Other measures of RE consumption trends



Trend 3: A regionally declining share of RE in TFEC



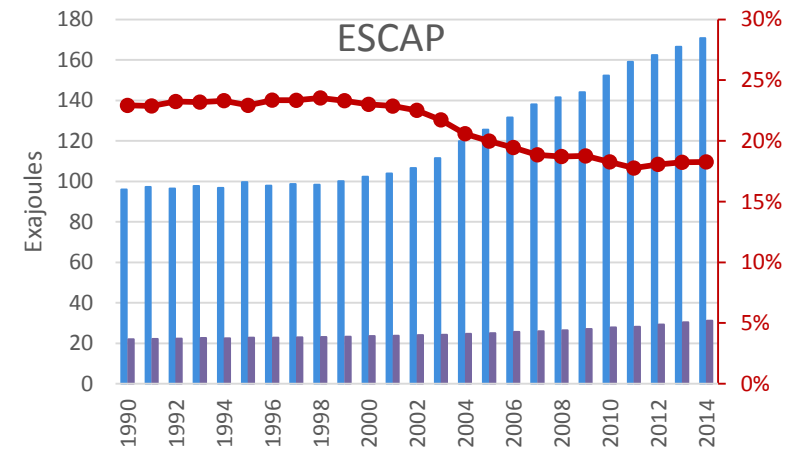
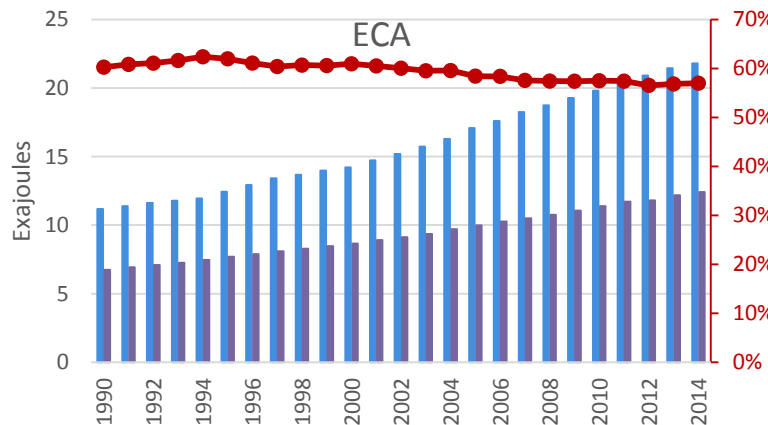
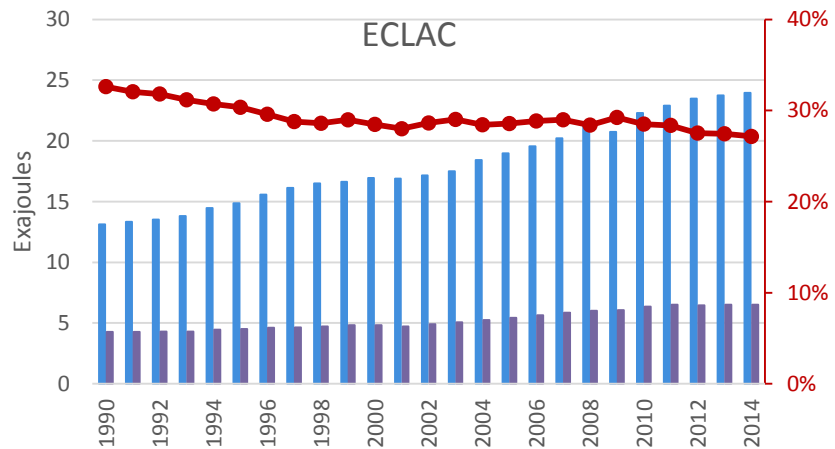
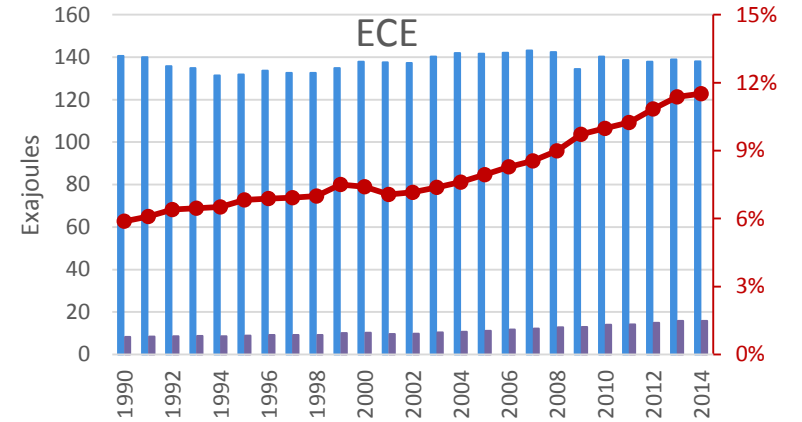
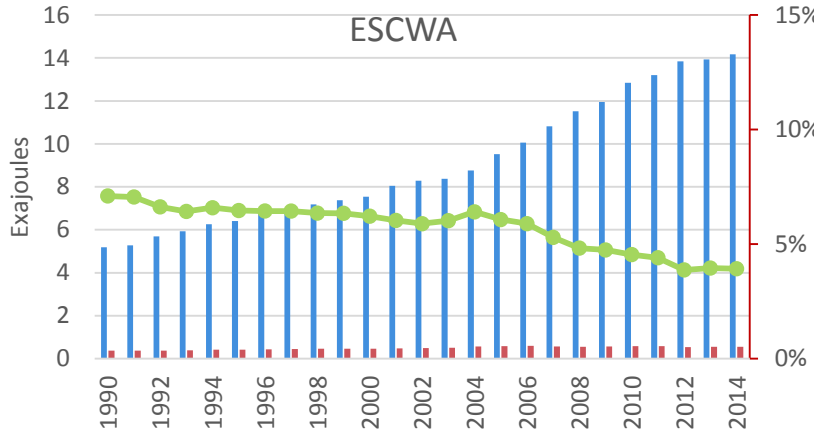
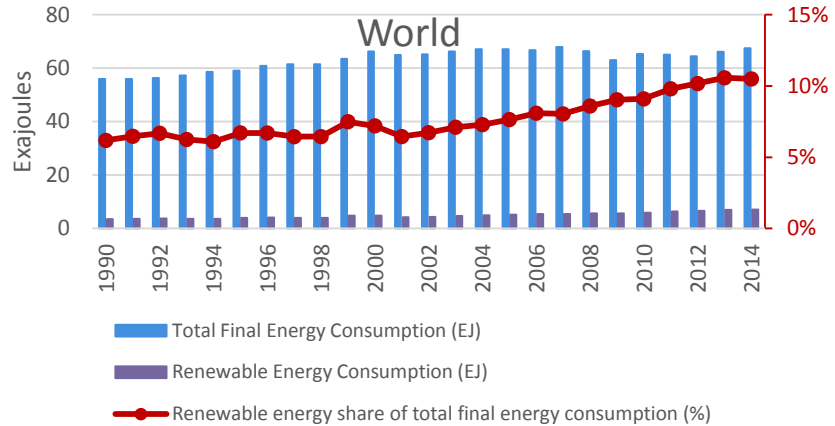
Declining share of RE in TFEC, due to

- LT trend declining biomass
- Very large additions to TFEC supplied by fossil fuels

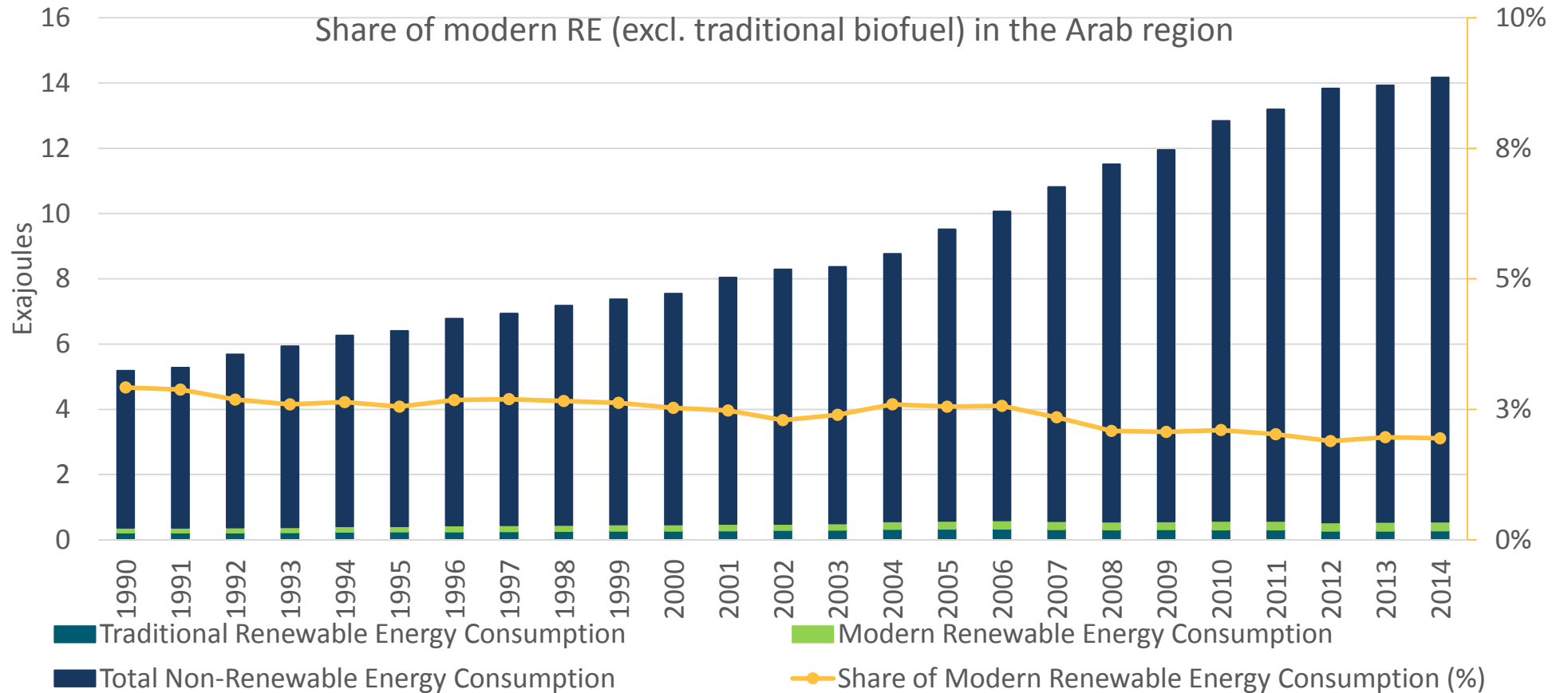
Very small overall share of RE in TFEC

Renewable Energy in the Arab Region

Trend 3: A regionally declining share of RE in TFEC

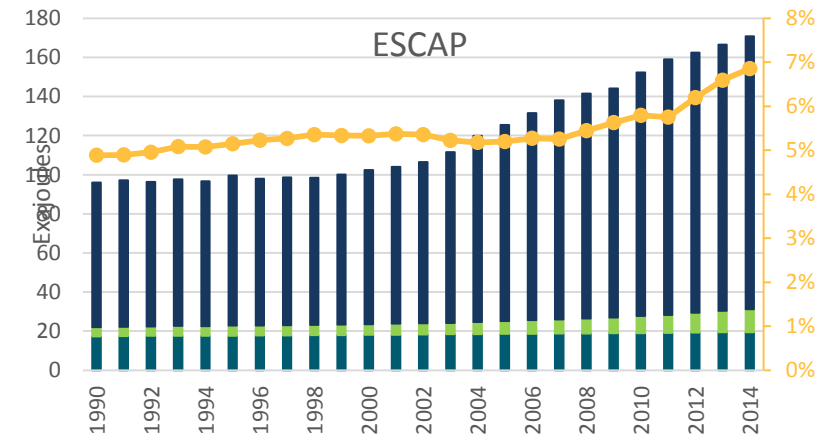
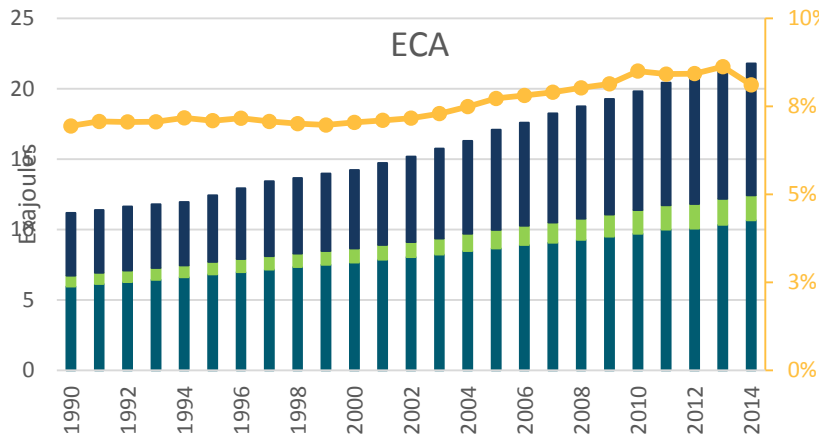
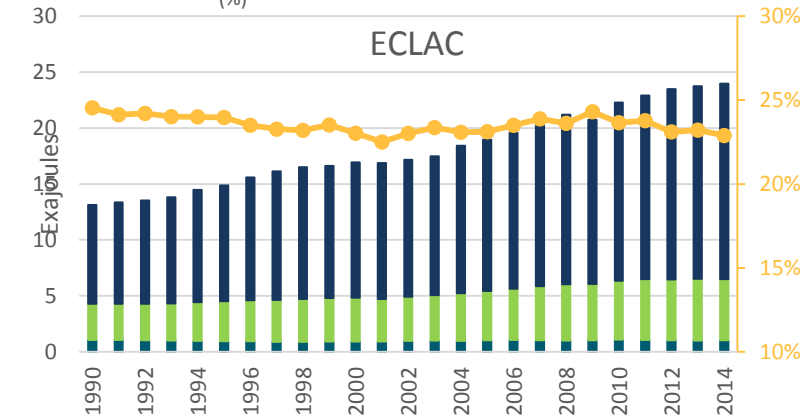
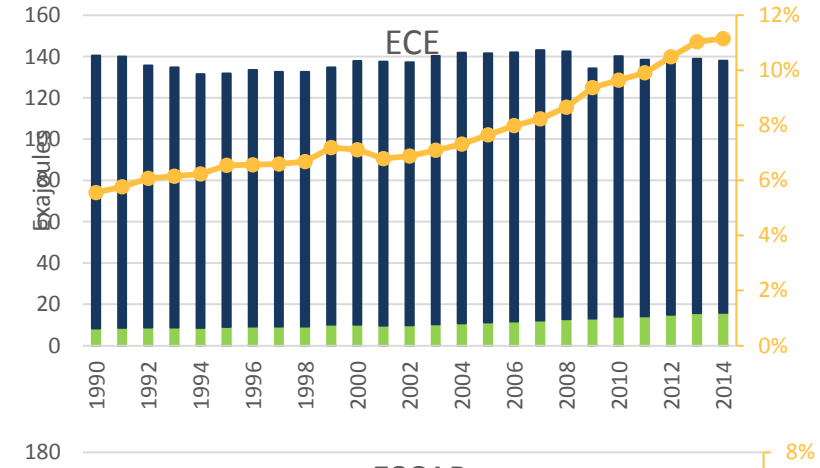
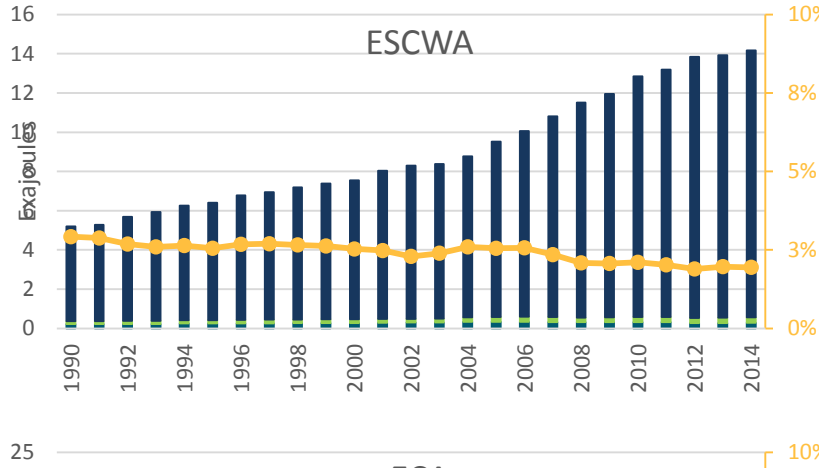
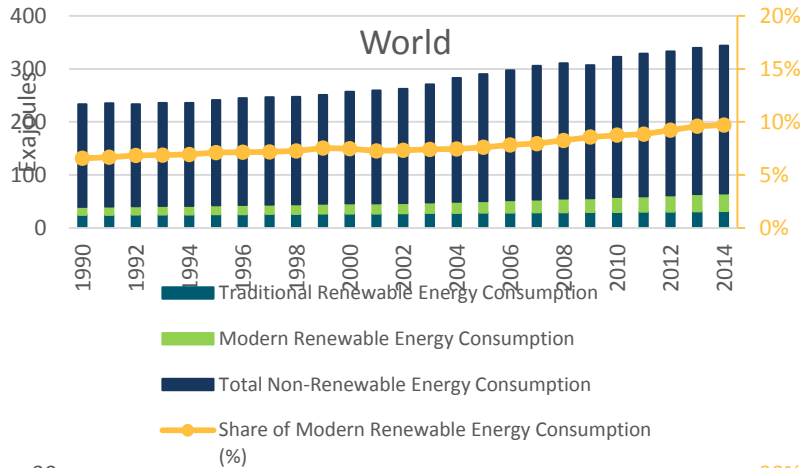


Trend 3: A regionally declining share of RE in TFEC



Renewable Energy in the Arab Region

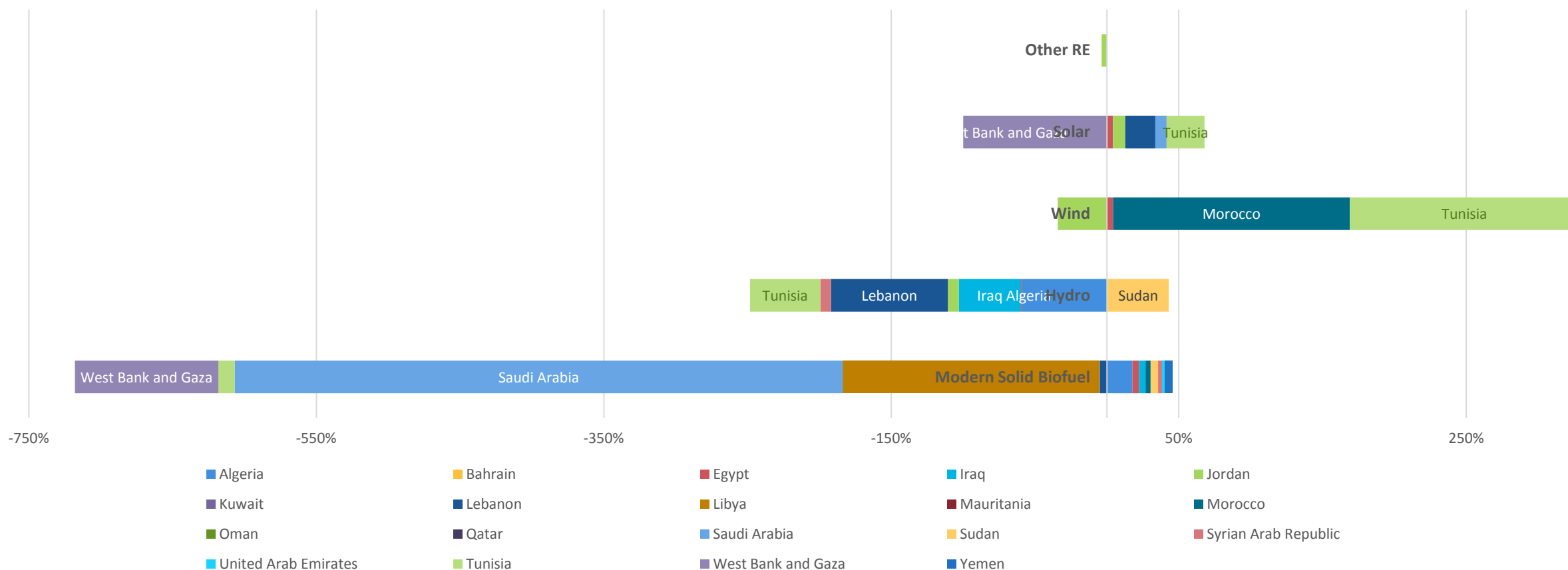
Trend 3: A regionally declining share of RE in TFEC



Renewable Energy in the Arab Region

Trend 2: Large differences between biomass users and all others

Change in modern RE consumption in the Arab region, 2012-14 (%)



Renewable Energy in the Arab Region

Other measures of RE consumption trends?

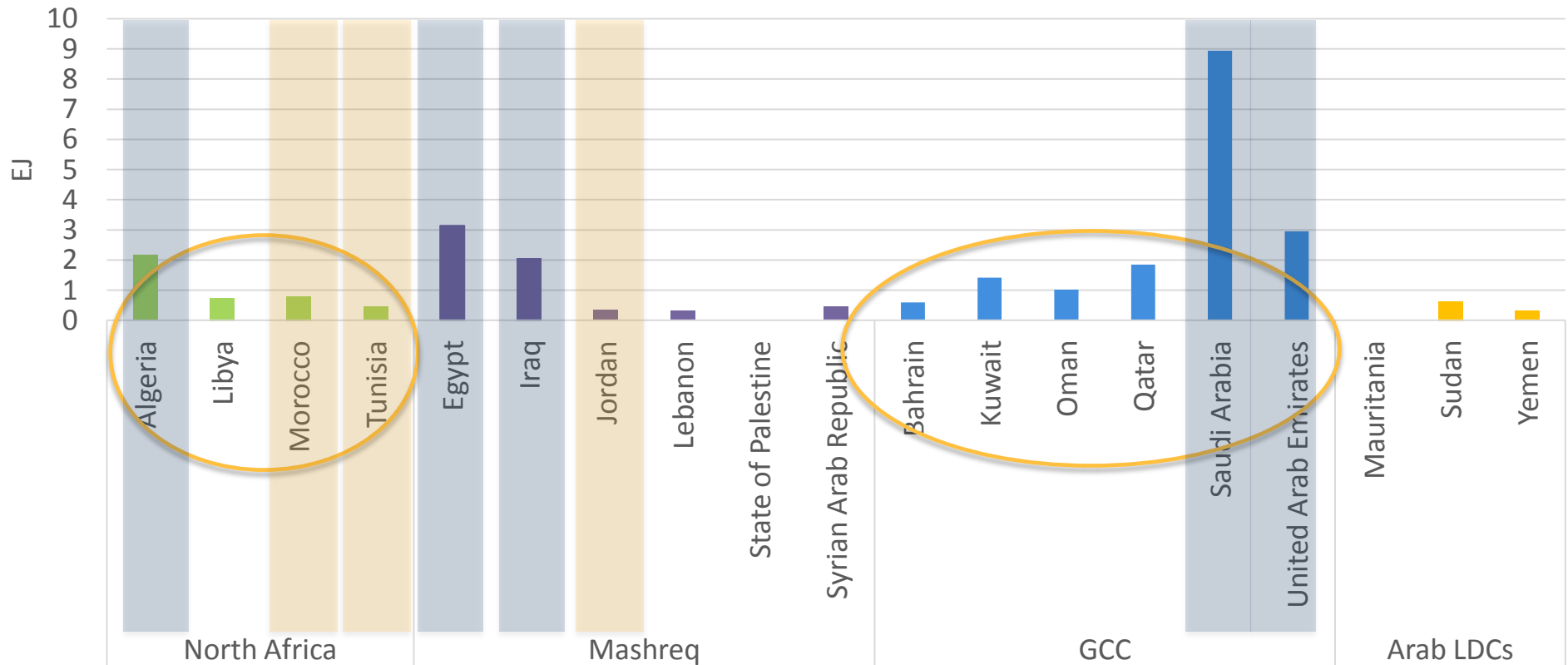
Who could be regional game changers?

Large energy consumers

Energy import-dependent states

Sub-regional trending and economies of scale

Total Primary Energy Supply (TPES) in the Arab region, 2014



Questions for further discussion

- What are the key **barriers to modern RE deployment** in the Arab Region?
- To what extent can RE support **social and economic development**, particularly in the rural/ remotes areas?
- Is there **Data Reporting Census** at the Country level, data sources and major challenges for data shortcoming?
- What role for **cross-regional cooperation and investment in “green” energy**, taking into consideration Climate Change Agreements and COP22 outcomes ?
- What are the **plans and policy strategies** of the governments of Arab countries for RE technologies to be nationally localized?

Appendix

Modern renewable energy increment, 2012-2014

	Modern Solid Biofuel	Liquid Biofuel	Hydro	Wind	Solar	Geothermal	Other RE	Total
Algeria	0	0	-0.00094045	0	0	0	0	-0.000940447
Bahrain	0	0	0	0	0	0	0	0
State of Palestine	-1.18755E-05	0	0	0	-0.0024713	0	0	-0.002483176
Iraq	4.42701E-05	0	-0.00520259	0	0	0	0	-0.005158321
Jordan	-1.10939E-08	0	-1.4334E-05	-3.1499E-06	0.000506793	0	-6.79474E-07	0.000488618
Kuwait	0	0	0	0	0	0	0	0
Lebanon	-3.07855E-05	0	-0.00274155	0	0.000175891	0	0	-0.002596441
Libya	-1.34015E-07	0	0	0	0	0	0	-1.34015E-07
Mauritania	0	0	0	0	0	0	0	0
Morocco	0.001124944	0	3.16929E-05	0.004319837	0	0	0	0.005476473
Oman	0	0	0	0	0	0	0	0
Qatar	0	0	0	0	0	0	0	0
Saudi Arabia	-6.25442E-07	0	0	0	3.44674E-07	0	0	-2.80768E-07
Sudan	0.00403752	0	0.008169348	0	0	0	0	0.012206869
Syrian Arab Republic	7.85201E-06	0	-0.00061915	0	0	0	0	-0.000611297
United Arab Emirates	3.20114E-05	0	0	0	0.000936581	0	0	0.000968592
Tunisia	-8.58679E-05	0	-0.00015457	0.000895631	0.000394458	0	0	0.001049649
Egypt	0.001600709	0	-0.00032313	0.000168724	3.00449E-05	0	0	0.00147635
Yemen	0.000123191	0	0	0	0	0	0	0.000123191
Total	0.006841198	0	-0.00179473	0.005381042	-0.00042719	0	-6.79474E-07	0.009999647

III. Renewable energy

Total Primary Energy Supply (TPES)

