Executive Training Course for Policymakers on the SDGs

SDG7 Module

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7 YEARS OF CONNECTING ASIA AND THE PACIFIC

Outline

- Starting thoughts
- What is SDG7?
- Why sustainable energy? - drivers for a global transition to sustainable energy
- Understanding the three components of SDG7 and their progress towards 2030 targets
- Five factors that will help drive delivery of SDG7
- Interactive discussion

1. Starting Thoughts

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- Energy affects all of us. It will become even more important in the future.
- Energy and politics are seldom separated.
- Energy is complex - predicting the evolution of energy defies the most capable of futurists.
- Vested interests, personal biases and information asymmetries will often trump science, engineering and logic in energy debates – "*caveat emptor*".

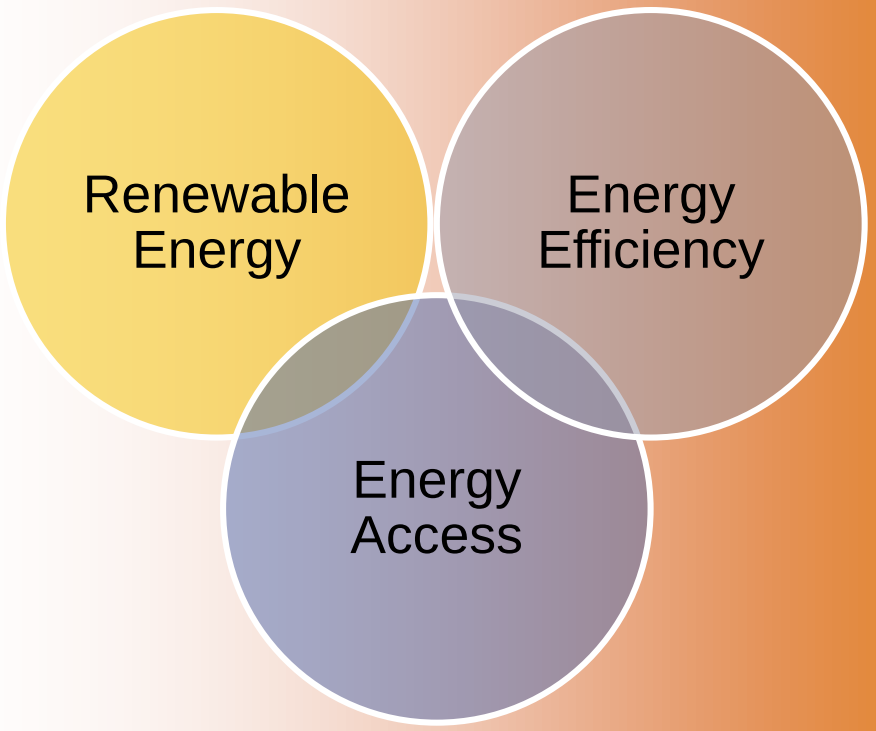
2. Anatomy of SDG7 – a transition to sustainable energy

- Target 7.1. “By 2030, ensure universal access to affordable, reliable and modern energy services.” Two components:
  - access to electricity;
  - access to clean cooking fuels.

- Target 7.2. “By 2030, increase substantially the share of renewable energy in the global energy mix”.

- Target 7.3. “By 2030, double the global rate of improvement in energy efficiency”, measured by energy intensity - ratio of total primary energy supply to GDP.

- All three elements are mutually reinforcing.



3. Global Energy Flows

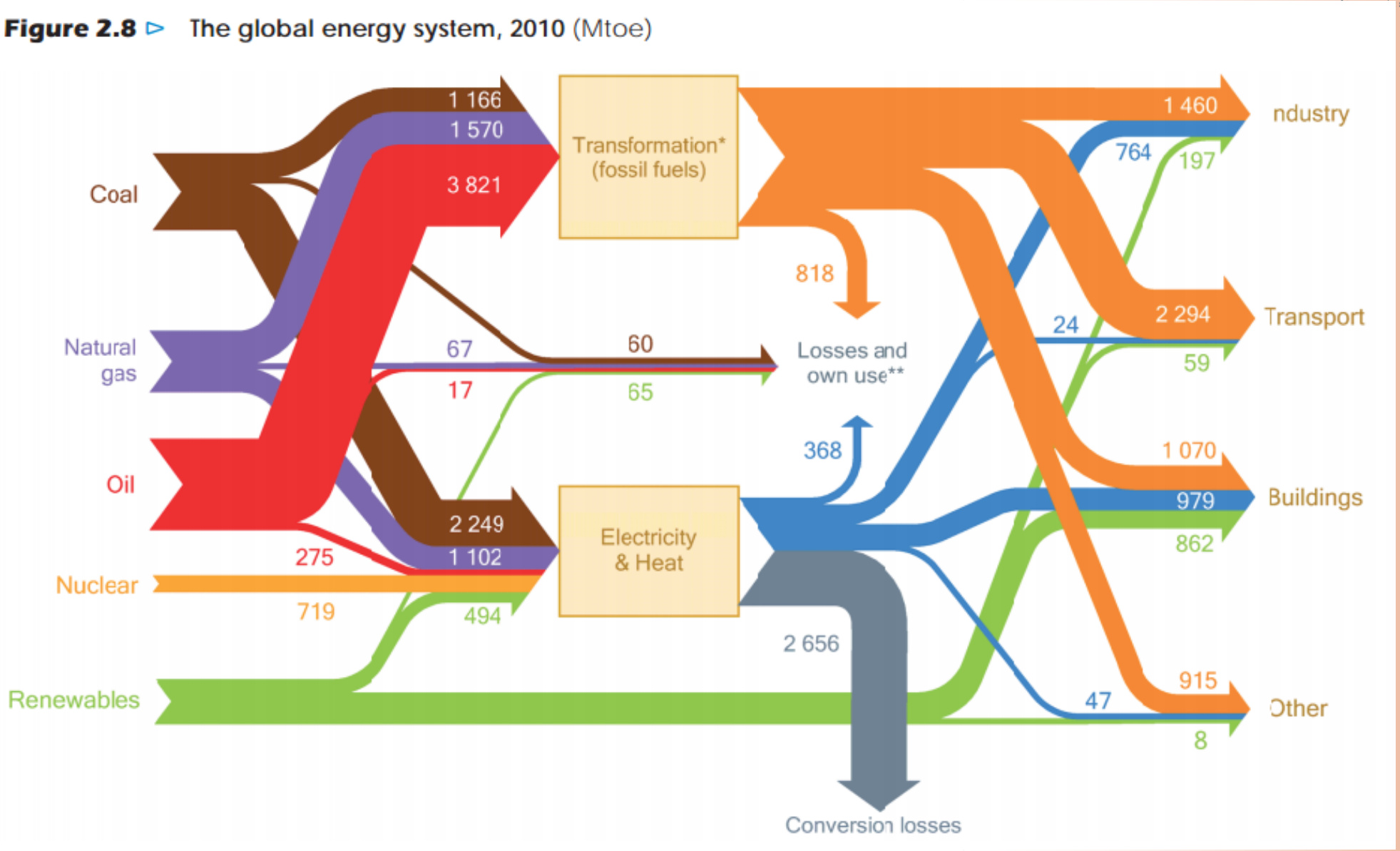


Image courtesy IEA

4. Context for SDG7 – an energy transition

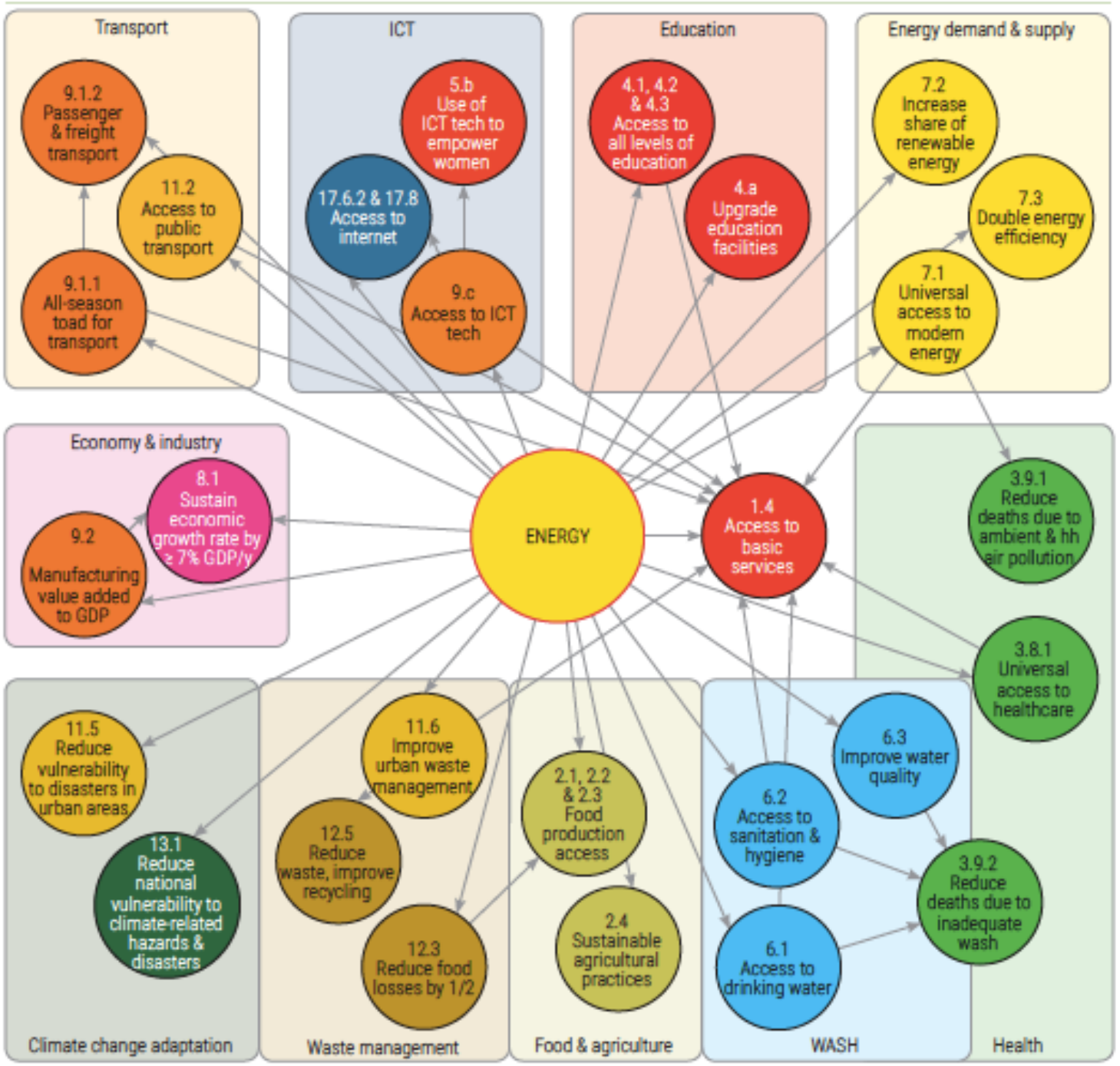
The world in 2018….and why we need a transition to sustainable energy.

- Climate change – CO_2 levels highest in 800,000 years
- Approaching or exceeding several “planetary boundaries”
- Increasing population and energy demand
- Enduring energy poverty in many regions
- Interplay of energy and geopolitics
- Accelerating pace of technology progress – 4th industrial revolution
- Chronic urban air pollution
- Unprecedented global consensus to work on sustainable and low carbon development – SDGs and Paris Agreement

Image courtesy NASA

SDG7 and the 2030 Agenda

- Energy is interlinked with multiple SDGs



Source: *Santika and others, forthcoming.*

Multiple pressures on natural systems

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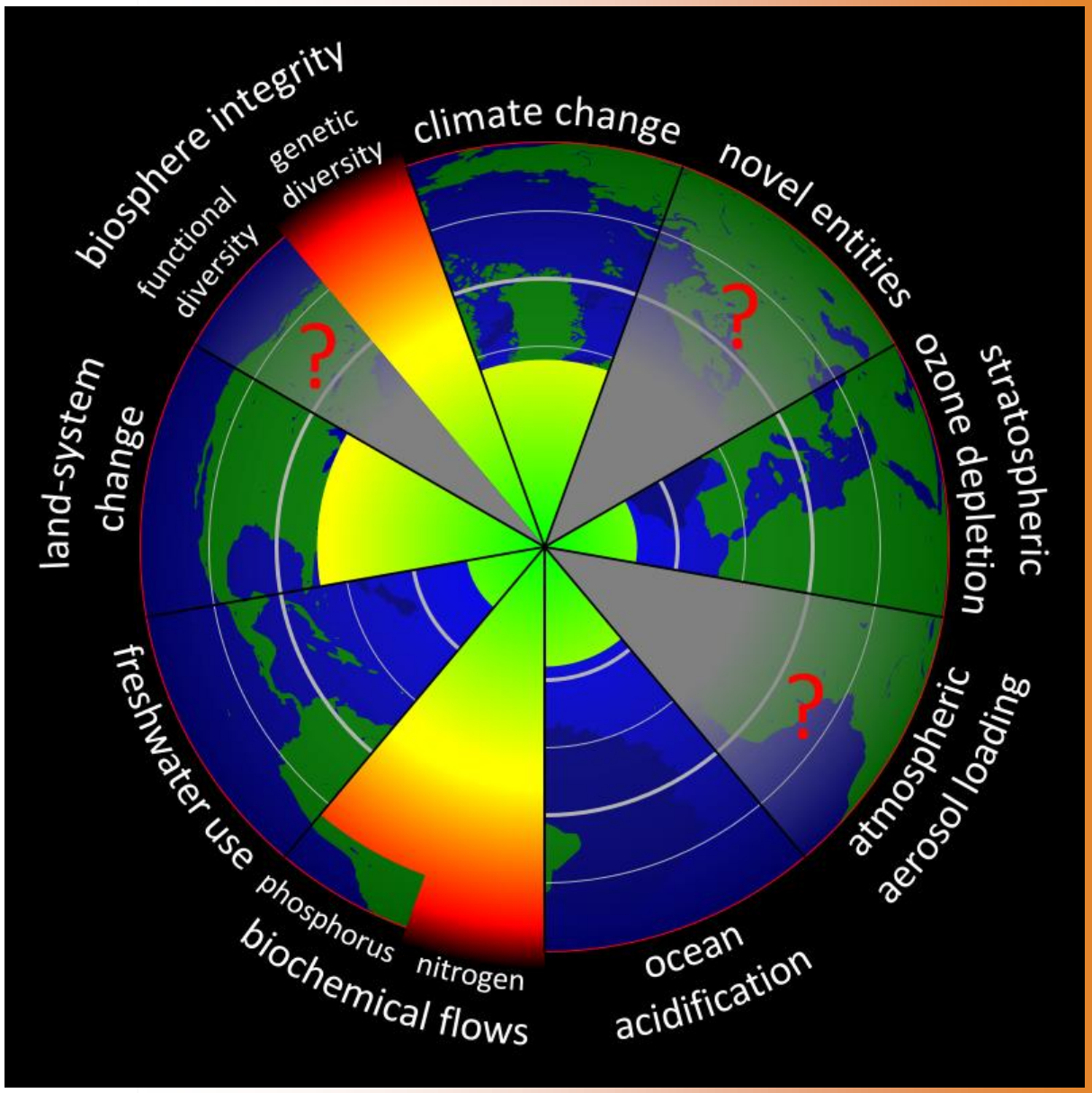
- 3 to 4 planetary boundaries already exceeded, others close to tipping points.

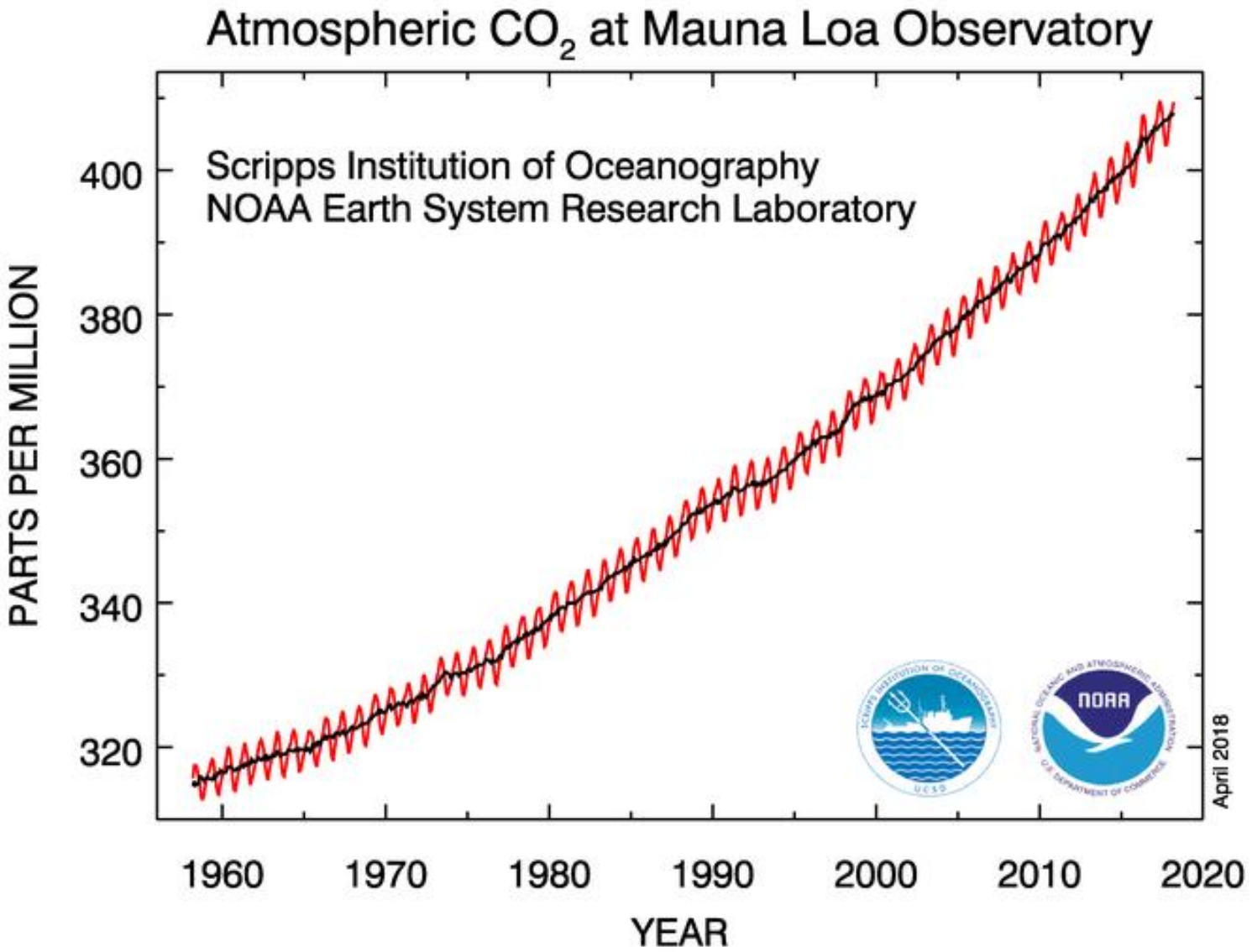


- *green areas represent human activities are within safe margins,*
- *yellow areas may or may not have exceeded safe margins,*
- *red areas have exceeded safe margins,*
- *gray areas with red question marks represent human activities for which safe margins have not yet been determined.*

Image: Stockholm Resilience Centre

Climate change

- Global atmospheric $C0_2$ has exceeded 400 ppm – pre-industrial level was 280 ppm.
- Paris Agreement aims for warming limit of least 2 degrees, preferably 1.5 degrees.
- More ambition needed - current pledges to Paris Agreement are only 2/3 of what is needed put us on track to 2 degrees.
- Energy represents 80% of anthropogenic remissions. Renewable energy and energy efficiency a major part of the solution.



Access to electricity “Leave no one behind”

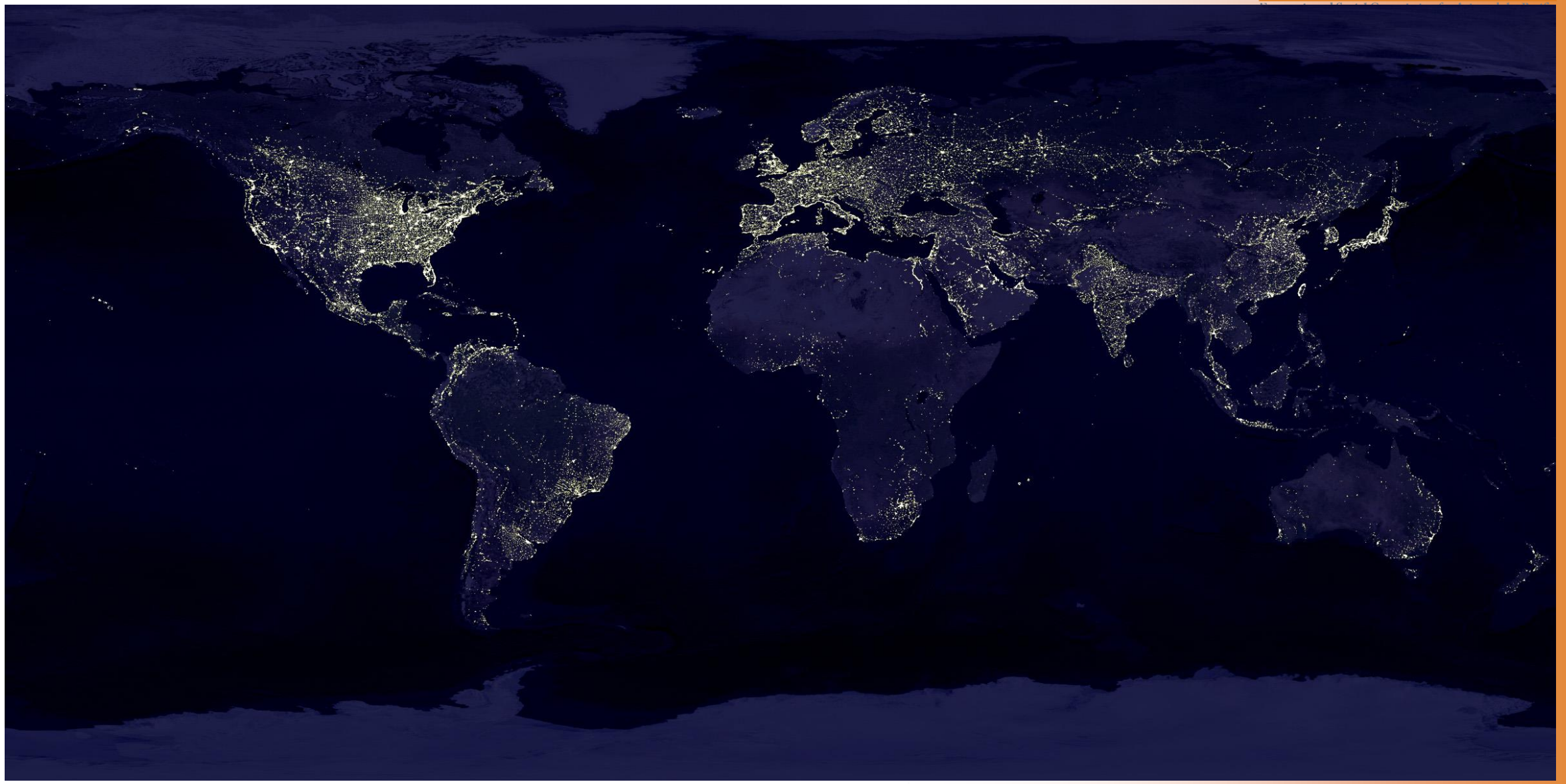
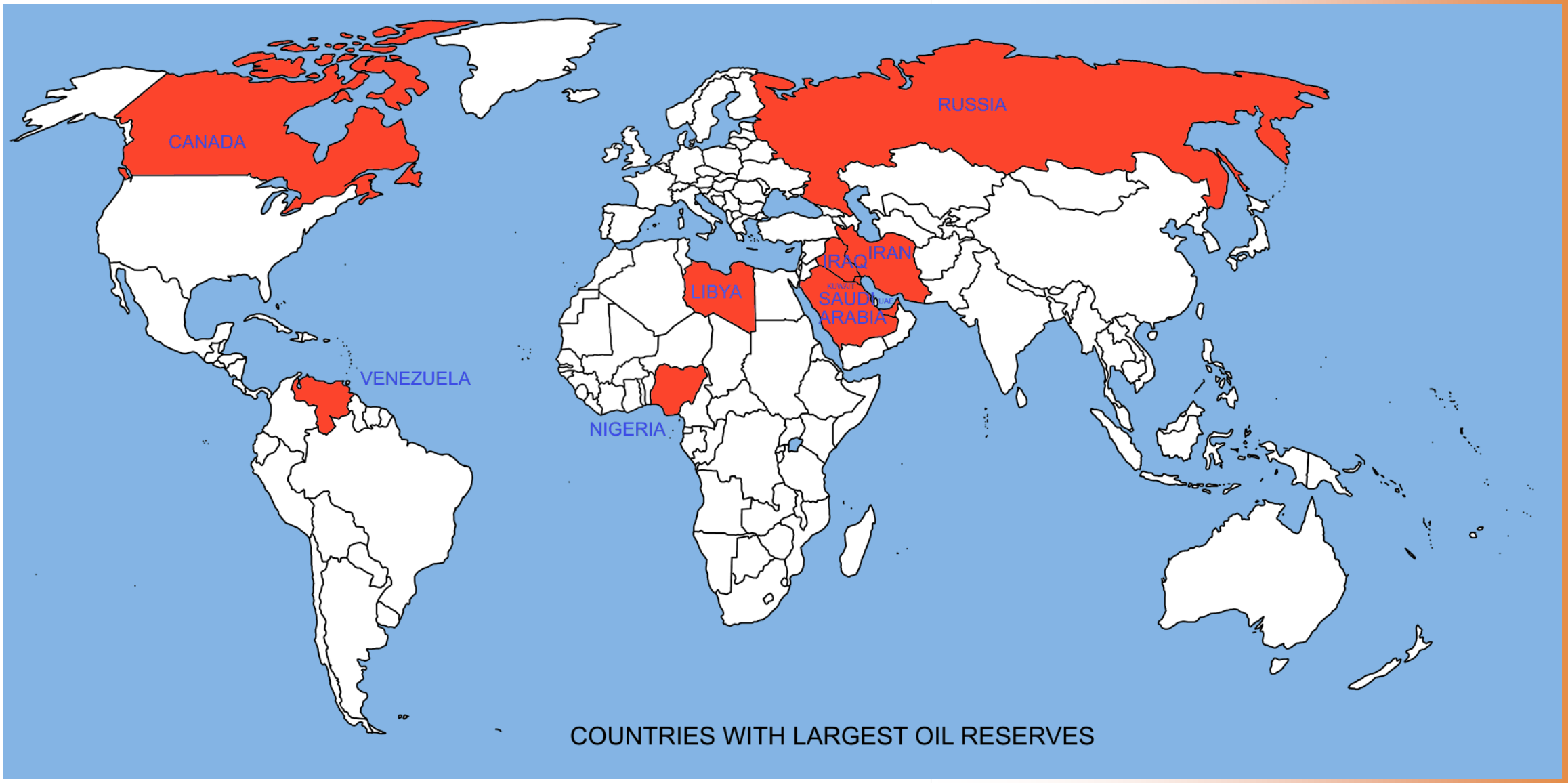
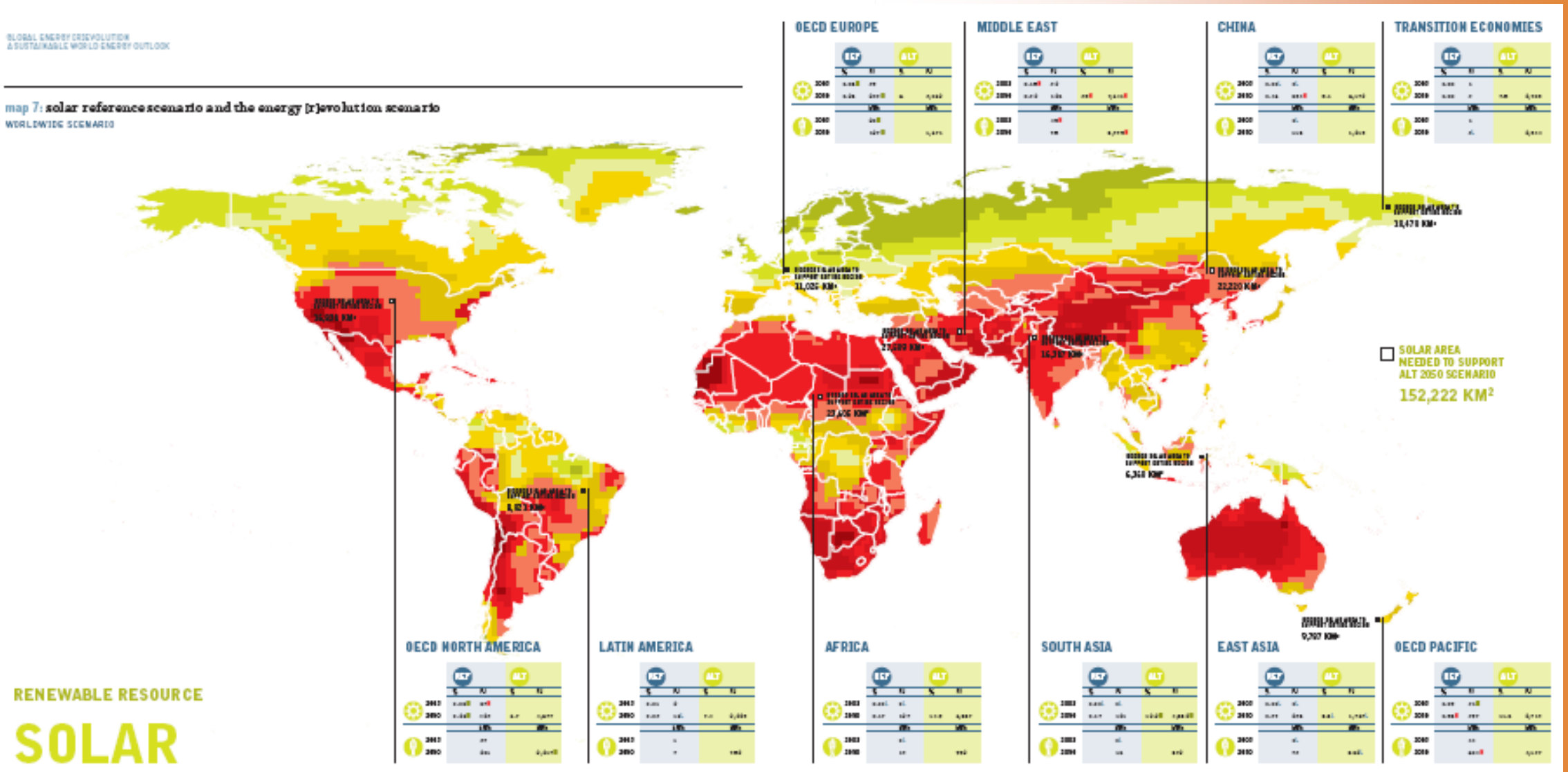


Image courtesy Theodora.com

Energy Geography – Crude Oil



Energy Geography – Solar Energy



Negative externalities of energy – air pollution

Image courtesy Hindustan Times

5. Progress in the 3 SDG7 pillars

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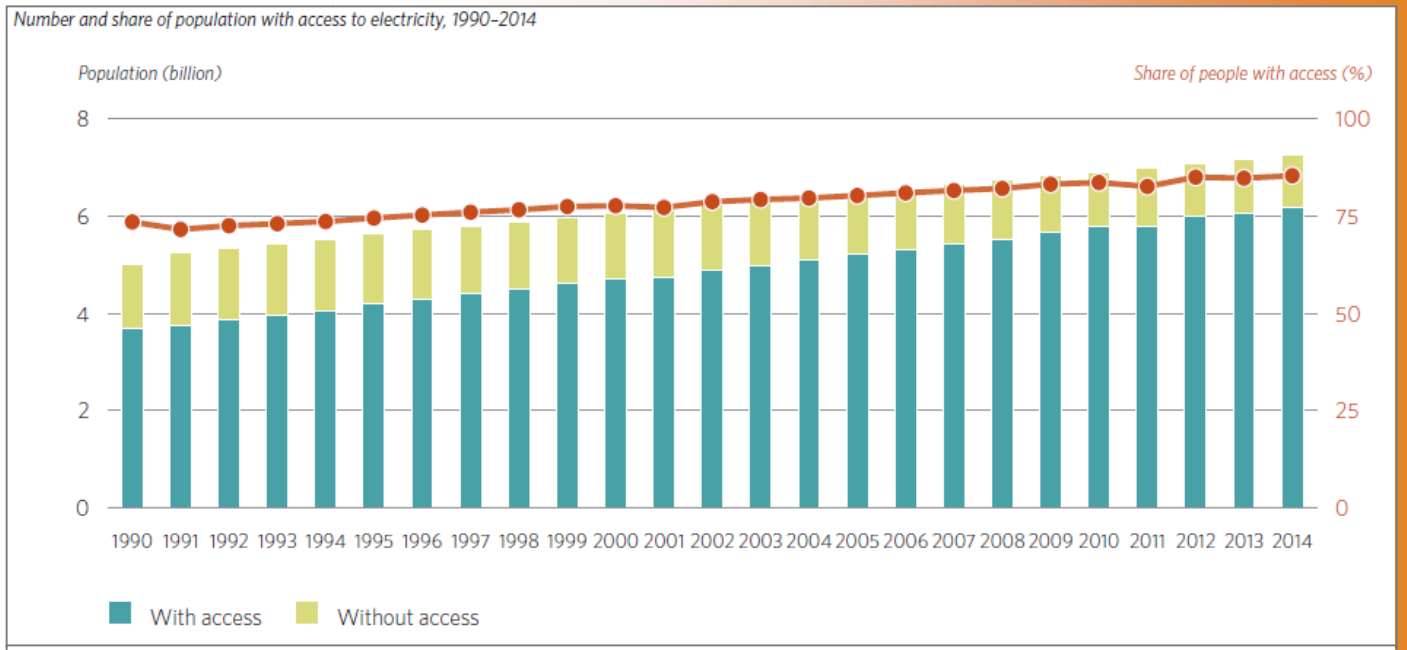
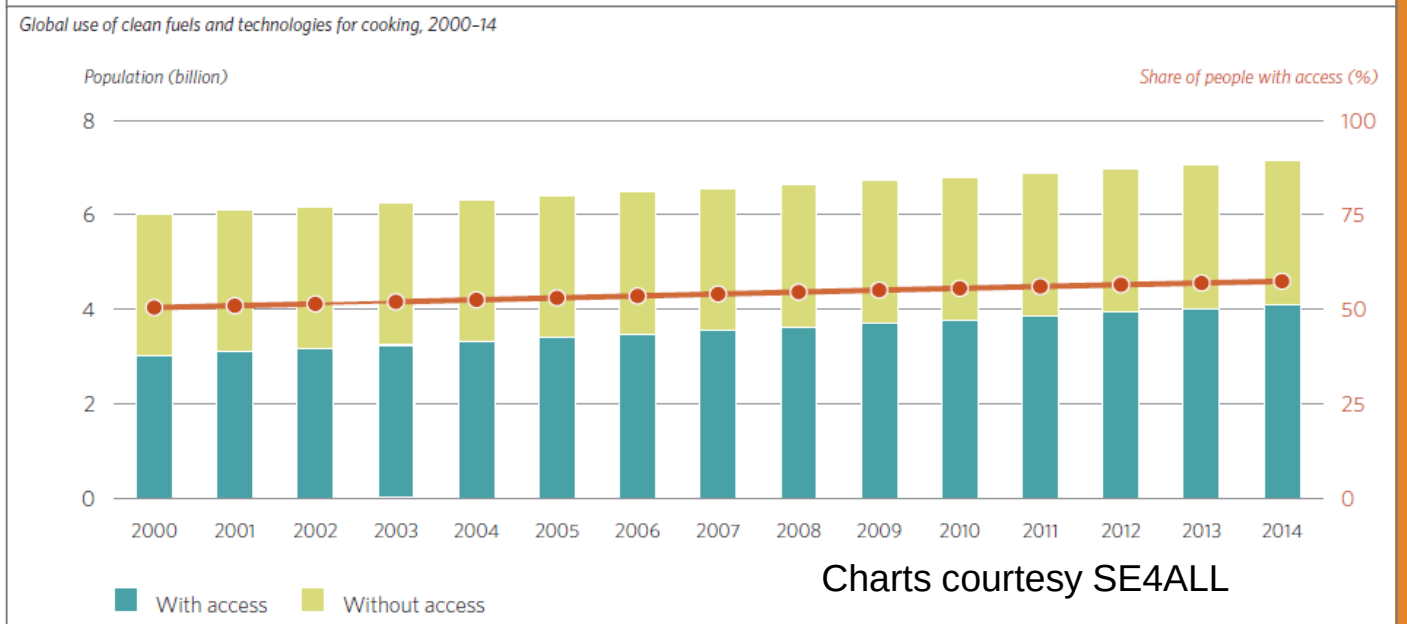
Energy access (1)

- 3.04 billion people lack access to clean cooking fuel – gap widening
- 1.06 billion people without electricity – gap narrowing
- Clean cooking target not on track for 2030 achievement

Image: Global Alliance for Clean Cookstoves





Charts courtesy SE4ALL

Energy access (2)

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FIGURE 1 Access to electricity

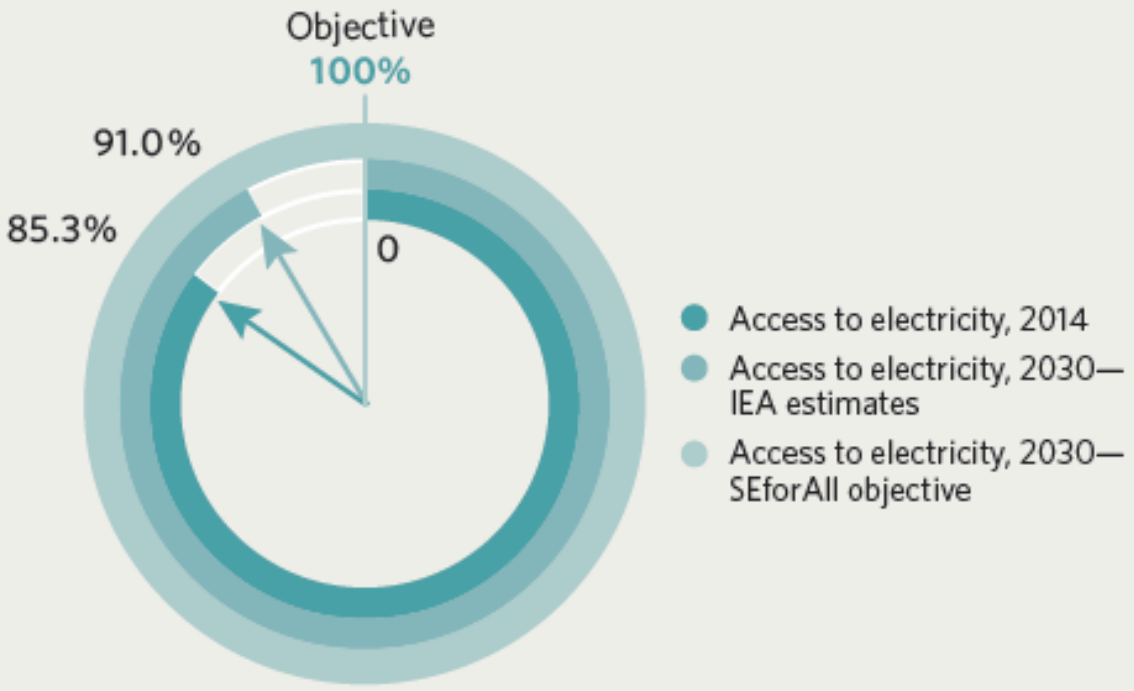

FIGURE 2 Access to clean fuels and technologies for cooking

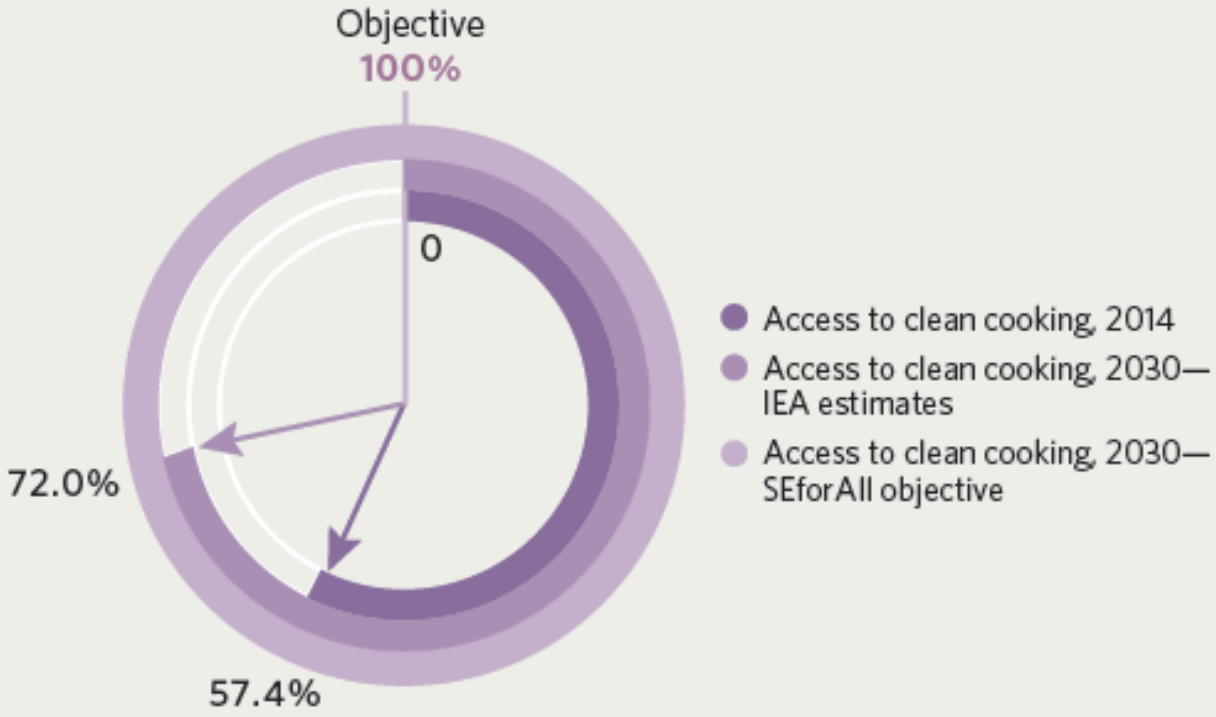

Image courtesy SE4ALL

Renewable energy (1)

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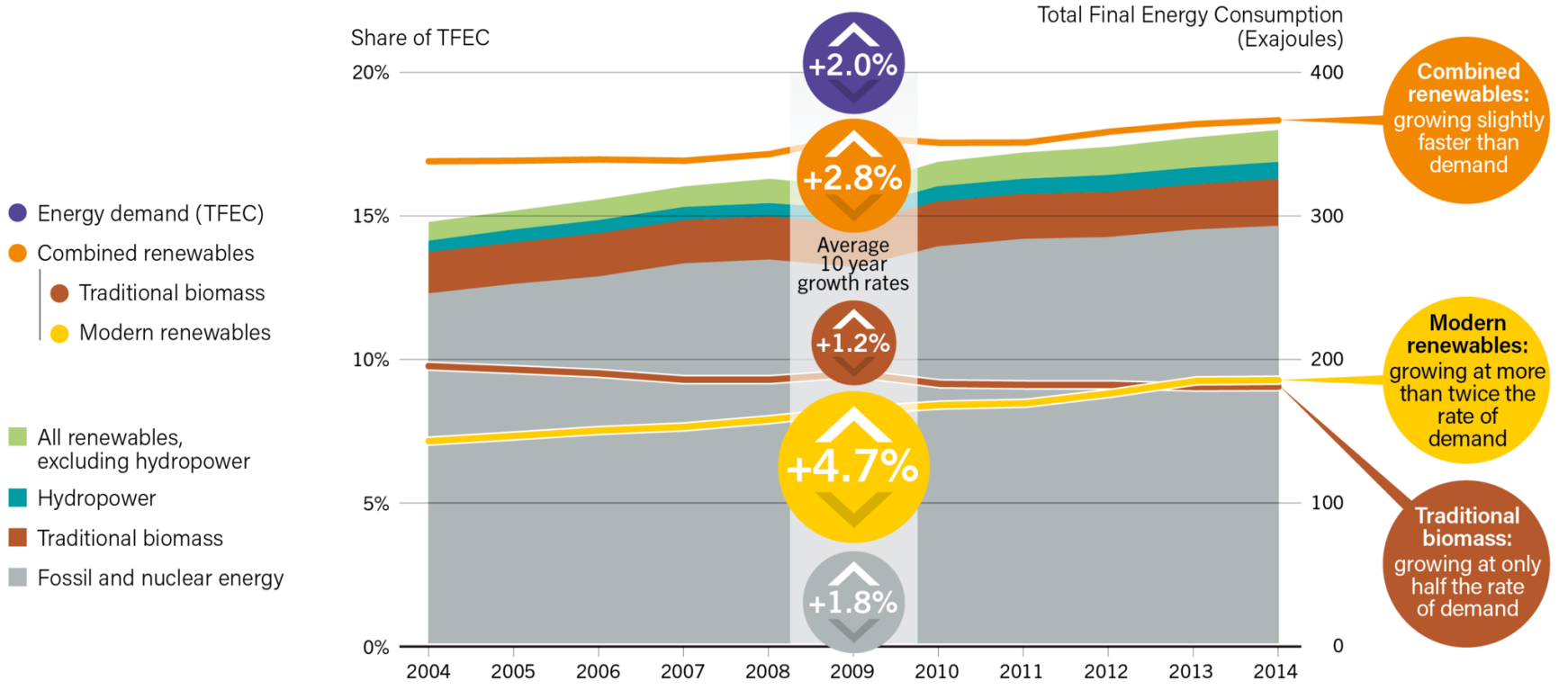
Growth in Global Renewable Energy Compared to Total Final Energy Consumption, 2004-2014



REN21 Renewable Energy Policy Network for the 21st Century

REN21 *Renewables 2017 Global Status Report*

Image courtesy REN21

Renewable energy (2)

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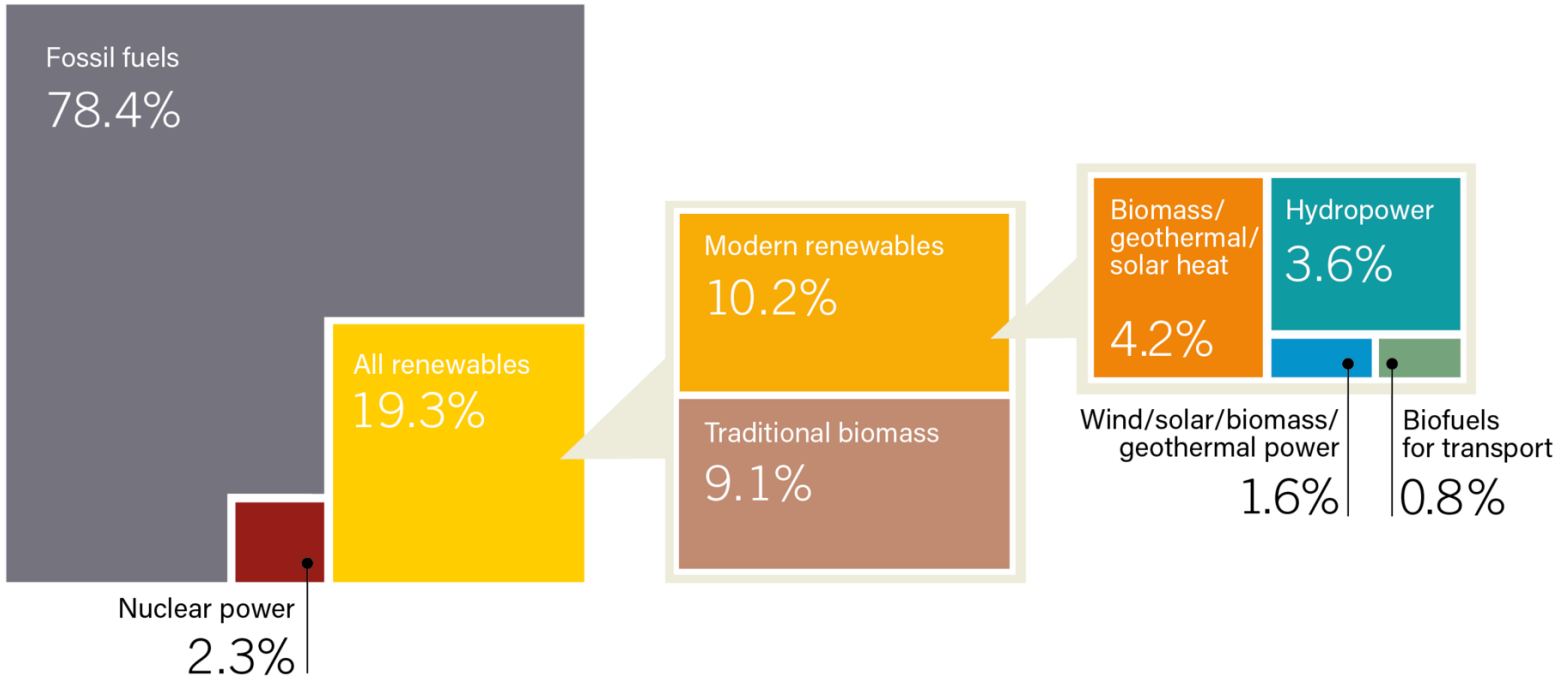
Estimated Renewable Energy Share of Total Final Energy Consumption, 2015



REN21 *Renewables 2017 Global Status Report*

REN21 Renewable Energy Policy Network for the 21st Century

Image courtesy REN21

Renewable energy (3)

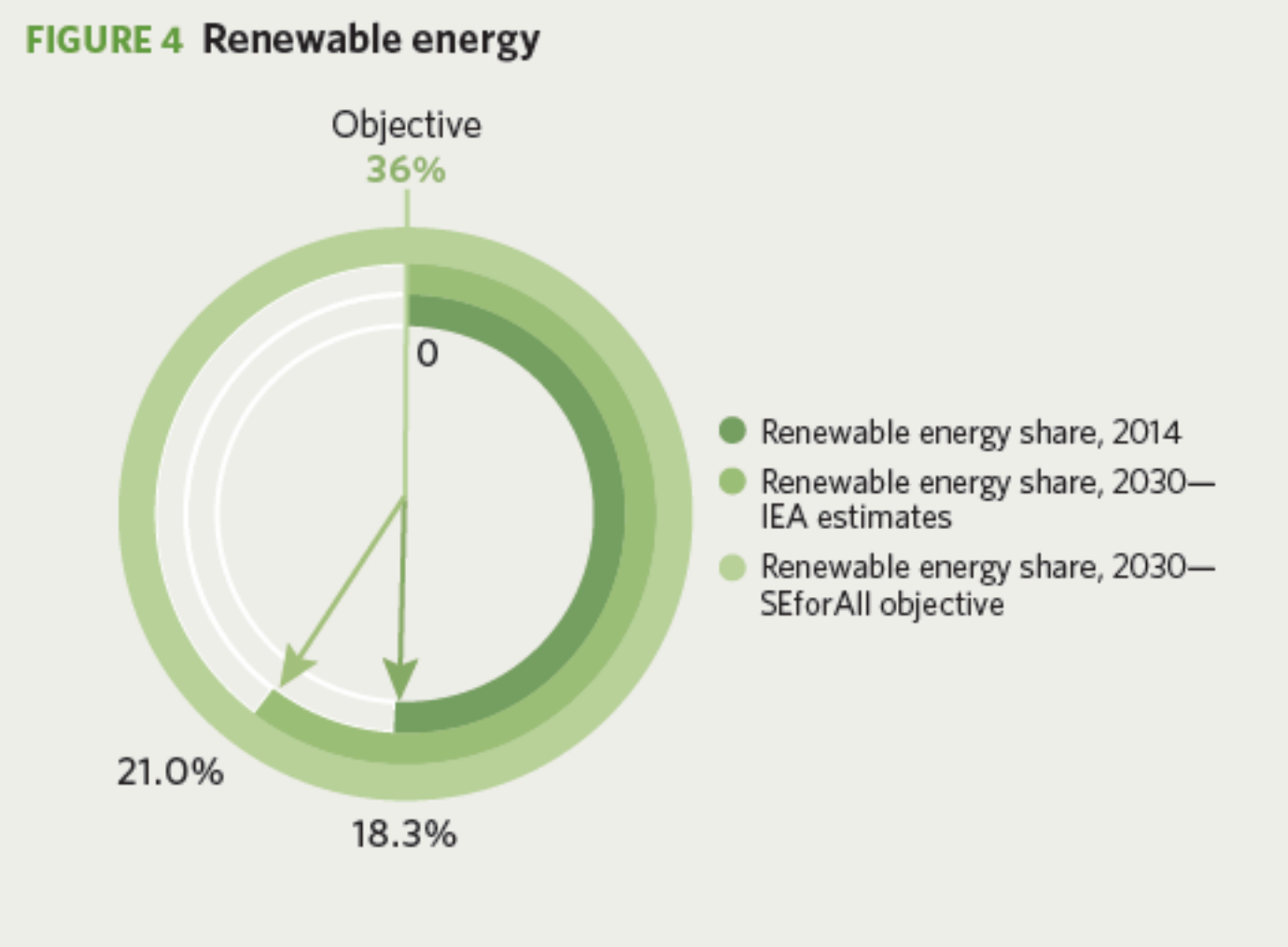
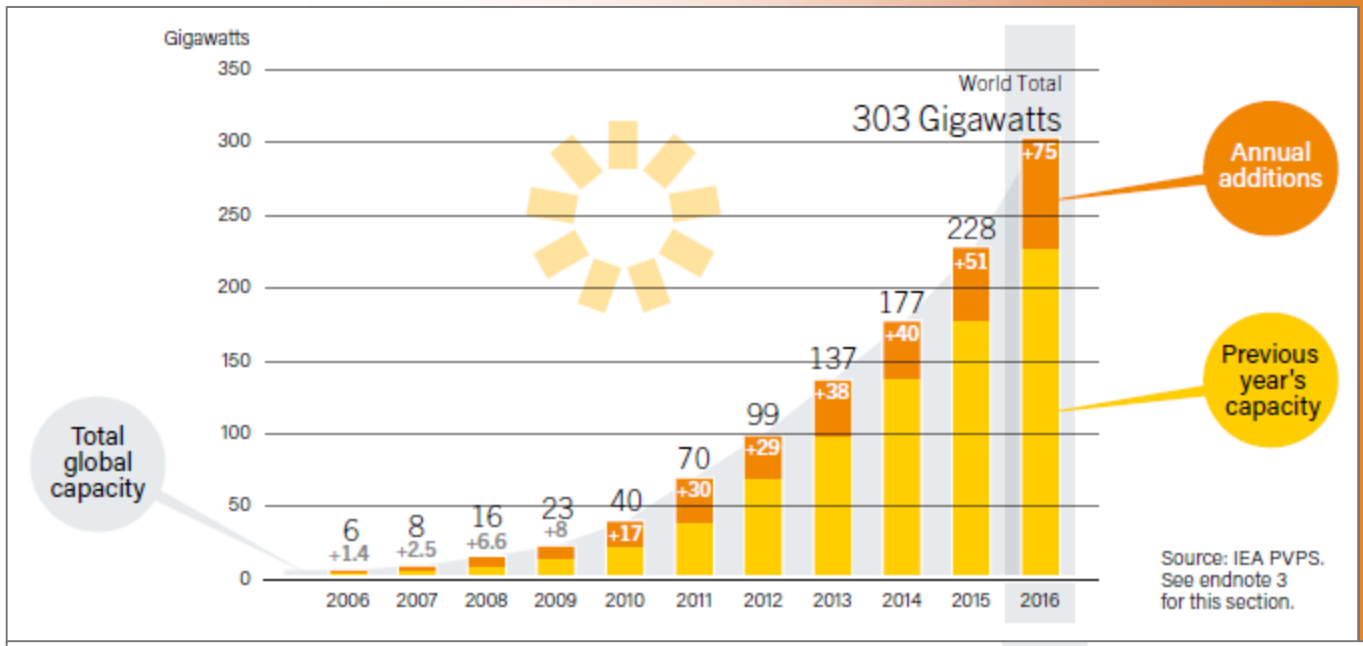


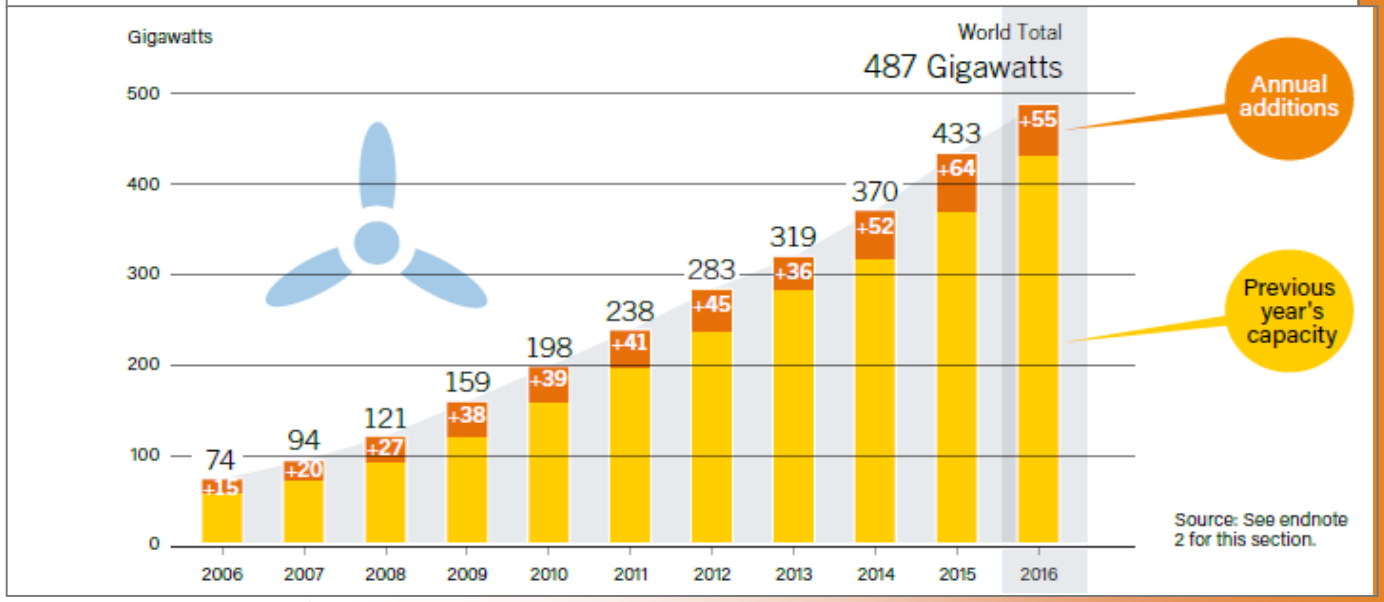
Image courtesy SE4ALL

- Renewables deployment will need to pick up speed
- Progress in transport, heating and cooling needs to match that in the electricity sector
- Energy efficiency will help level off growth and increase the share of renewables in final consumption

Renewable energy (4)

Renewables in electricity now dominated by solar and wind – bulk of new investment





Charts courtesy REN21

Energy efficiency

- Almost on track for a doubling of energy efficiency by 2030
- Energy efficiency as defined by SDG7 is not just better appliances or buildings but efficient *systems* – public transport, smart urban design, the sharing economy
- IEA estimates energy efficiency can deliver 40% of global emissions savings for 2 degree target

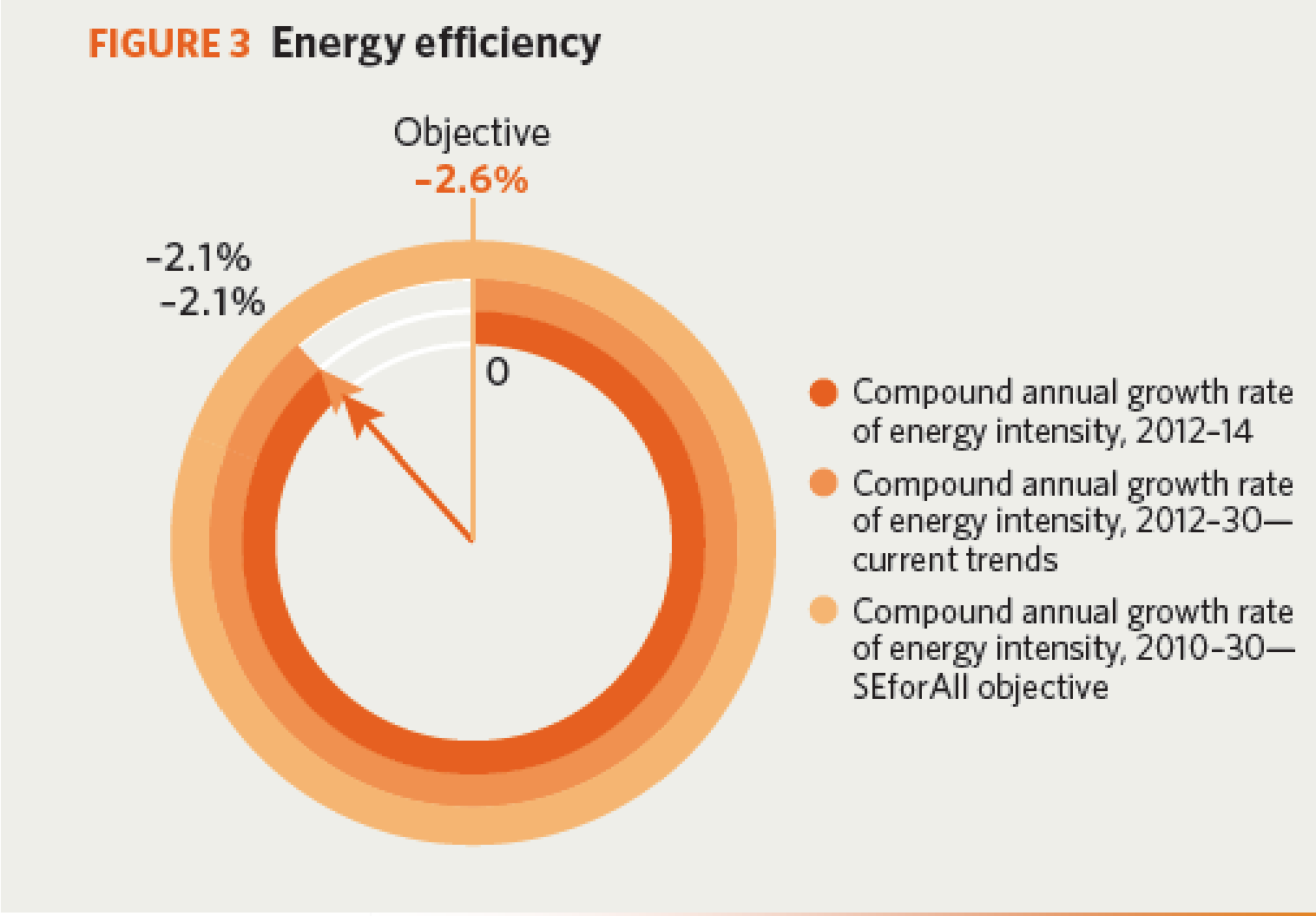


Image courtesy SE4ALL

6. Five factors that will help us reach SDG7

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1. Electric vehicles become mainstream and prompt a shift from petroleum to clean electricity (EE, RE)
2. Solar becomes the lowest cost of all power sources at any scale, offsets fossil fuel and opens up rural electrification (RE, EE, EA)
3. HVDC large scale cross-border grid interconnections link national grids and bring renewable resources to load centers (RE, EE)
4. Energy storage becomes low cost and solves the variability problem of cheap renewables (RE, EE, EA)
5. Global commitment to reach the goals of the Paris Agreement will see more finance and policy support to clean energy - pushing SDG7 targets over the line (RE, EE).

Key: RE – renewable energy; EE – energy efficiency; EA – energy access

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Thank You

Questions?