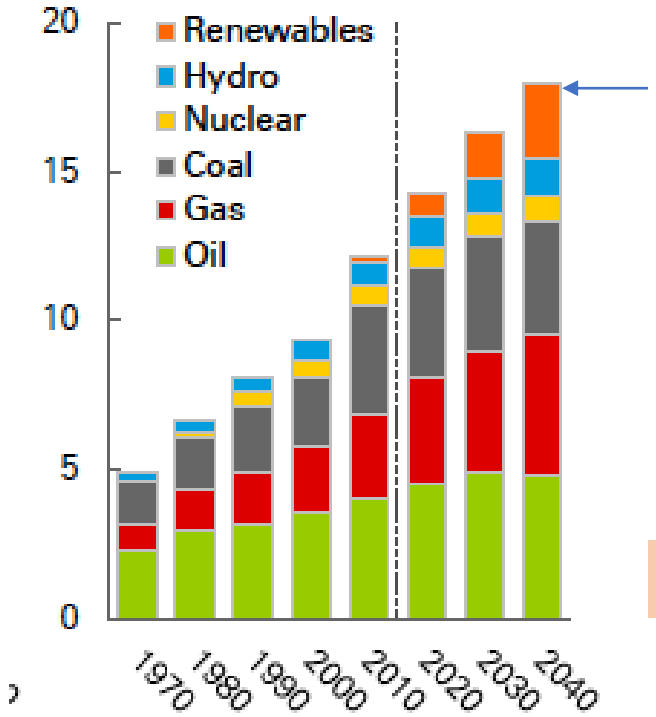
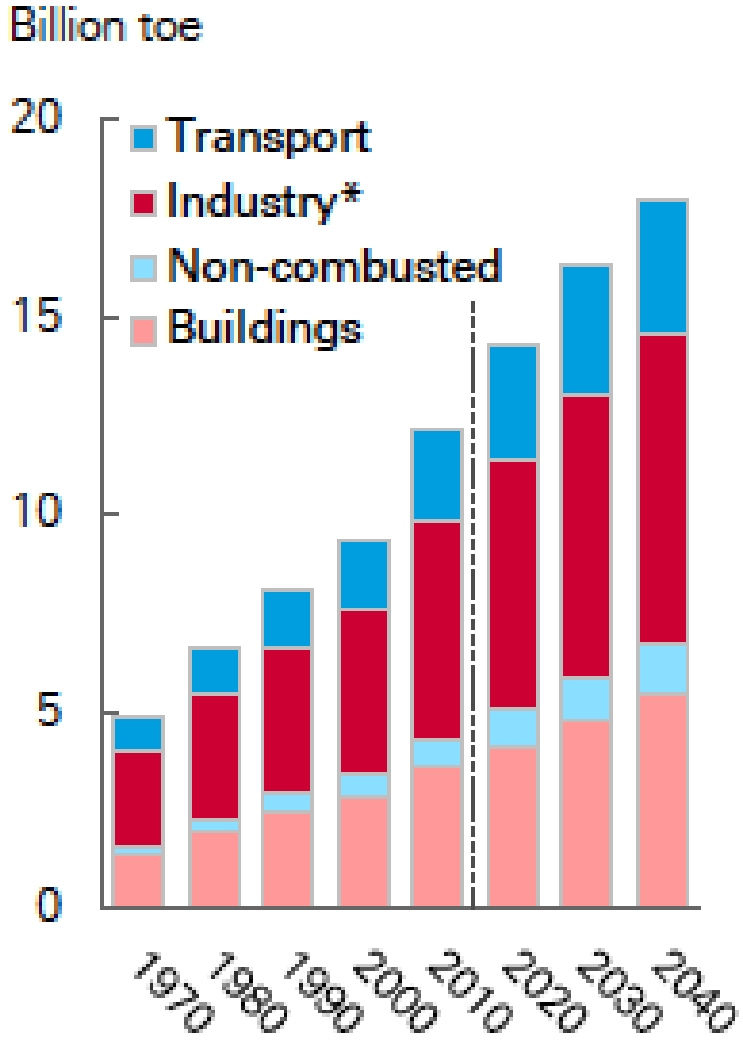
Key megatrends motivate planning for an energy future

Energy End Use
Transportation
Buildings

Billion toe

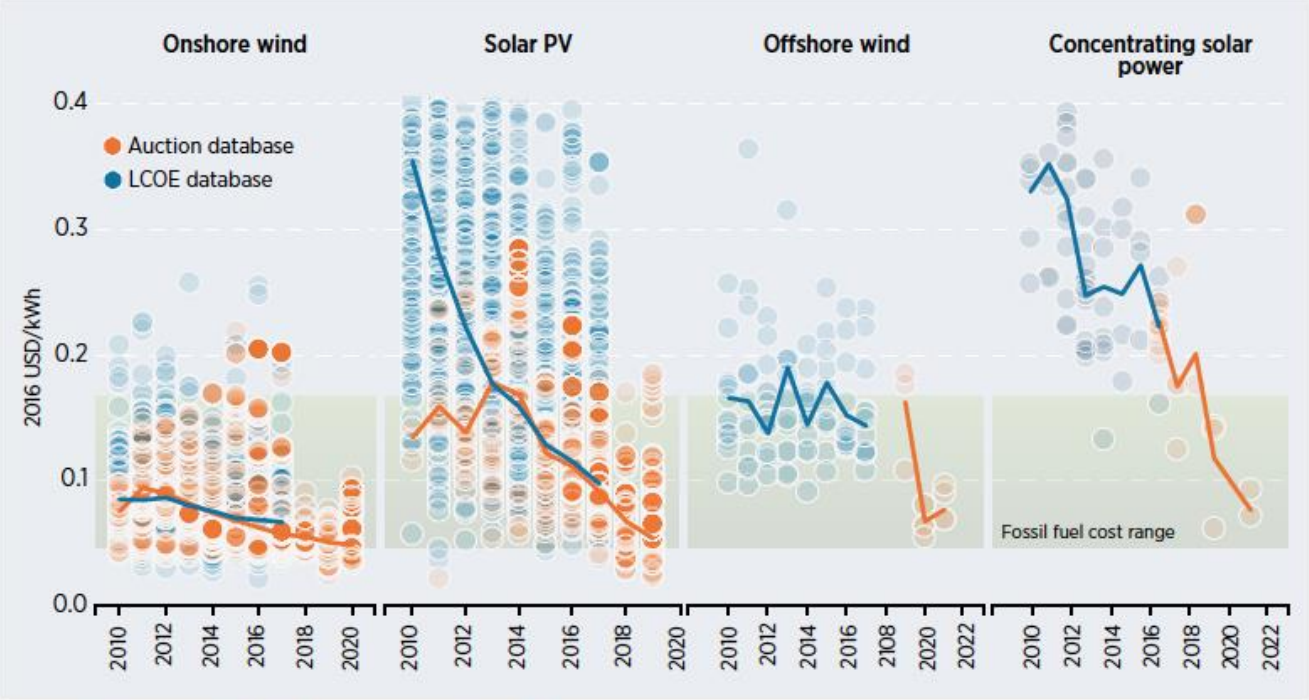


2018 Energy BP Outlook

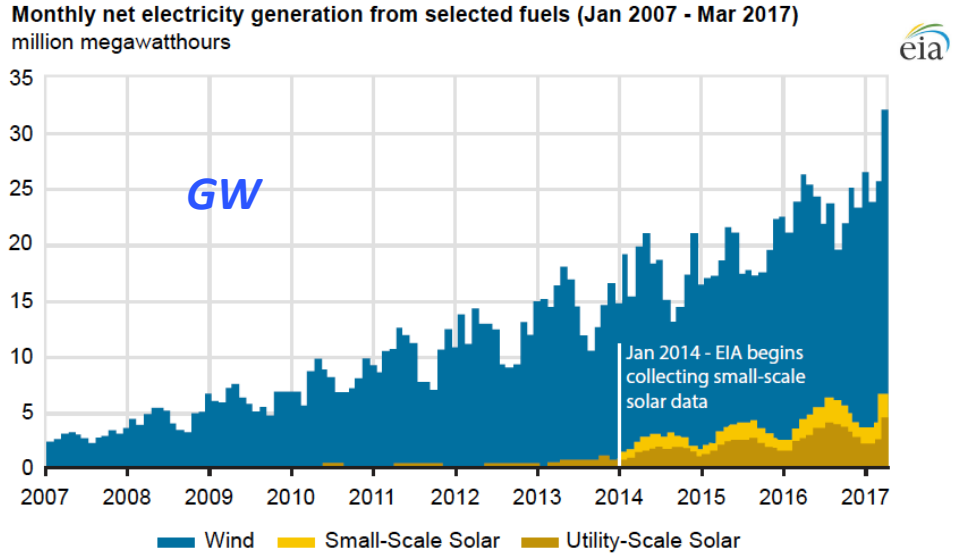


- Population increase ~20% and a nearly doubling of global GDP by 2050
- Urbanization
- Electrification

Despite cost parity, significant future challenges remain for Solar and Wind



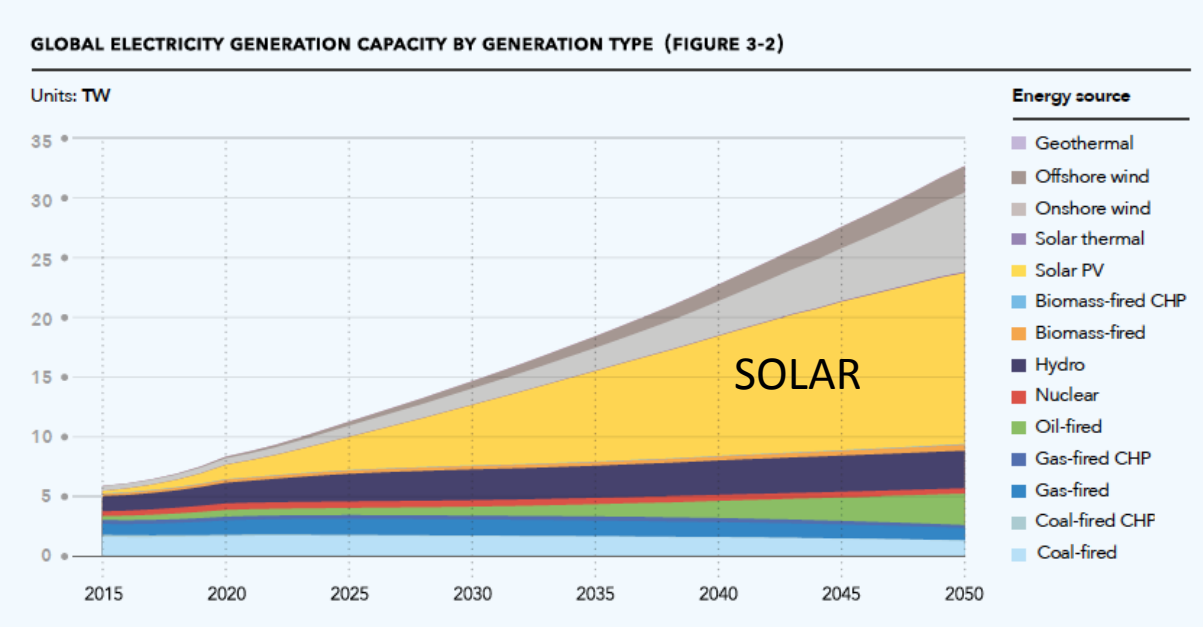
Source: IRENA Renewable Cost Database and Auctions Database.



Costs for solar and wind energy are comparable to, or less than, conventional energy sources

Solar and Wind Must Provide Terawatts Of Power for Electrification, by 2050

Solar and Wind will need to provide ~ 2/3 energy for electrification in 2050



DNV GL ENERGY TRANSITION OUTLOOK – RENEWABLES, POWER, AND ENERGY USE

- In 2050, the share of electricity for primary energy use is predicted to be twice what it is today (18% to 40% globally)
- Solar must provide ~ 15 TWs of power by 2050

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

A Brief Introduction

Peter F. Green
Deputy Laboratory Director for Science and Technology
September 6, 2018

NREL at a Glance

1,700

Employees,
plus more than
400
early-career researchers and visiting scientists

World-class
facilities, renowned technology experts

nearly 750

Partnerships
with industry, academia, and government

Campus
operates as a living laboratory

$872M annually

National economic impact

NREL develops renewable energy and energy efficiency technologies and practices, advances related science and engineering, and transfers knowledge and innovations to address the nation's energy and environmental goals