



**LIFE Climate Foundation**  
Liechtenstein

# **Energy Transition – The Global Context**

**2nd Renewable Energy Finance Dialogue Liechtenstein**  
**23. October 2014**

**LIFE Climate Foundation Liechtenstein**

Austrasse 46 | P.O. Box 254 | FL-9490 Vaduz | Tel.: +423 230 13 26 |  
[www.climatefoundation.li](http://www.climatefoundation.li)



The world needs a global energy transition – for obvious reasons:

- Increase in world population until 2025 up to 8,17 billion\*  
(by 78 Mio. / a or 220'000 / day or 150 / minute)

Fossil fuel subsidies are rising consequently from 300 billion USD (2009) to 544 billion USD (2012) – renewable energy subsidies amounted to 101 billion USD in 2012 \*\*

- Dependence on fossil fuels comes with enormous risks for health and peace
- Current level of CO<sub>2</sub> in the atmosphere is 400ppm – the highest ever measured\*\*\*  
(CO<sub>2</sub> emissions continue to grow, from 2011 to 2012 by 1.4 % up to 31.6 Gt)

\* UN World Population Prospects – The 2012 Revision (2012)

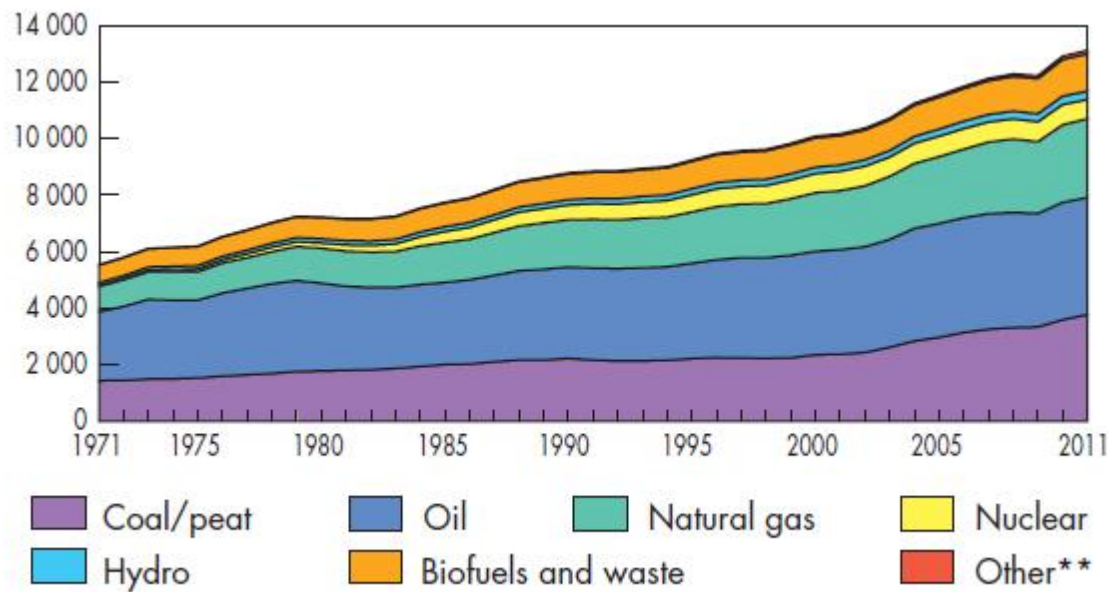
\*\* International Energy Agency, IEA (2014)

\*\*\* IPCC, 5th AR (2013), 2ppm added every year



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### World total primary energy supply from 1971 to 2011 by fuel (Mtoe)\*



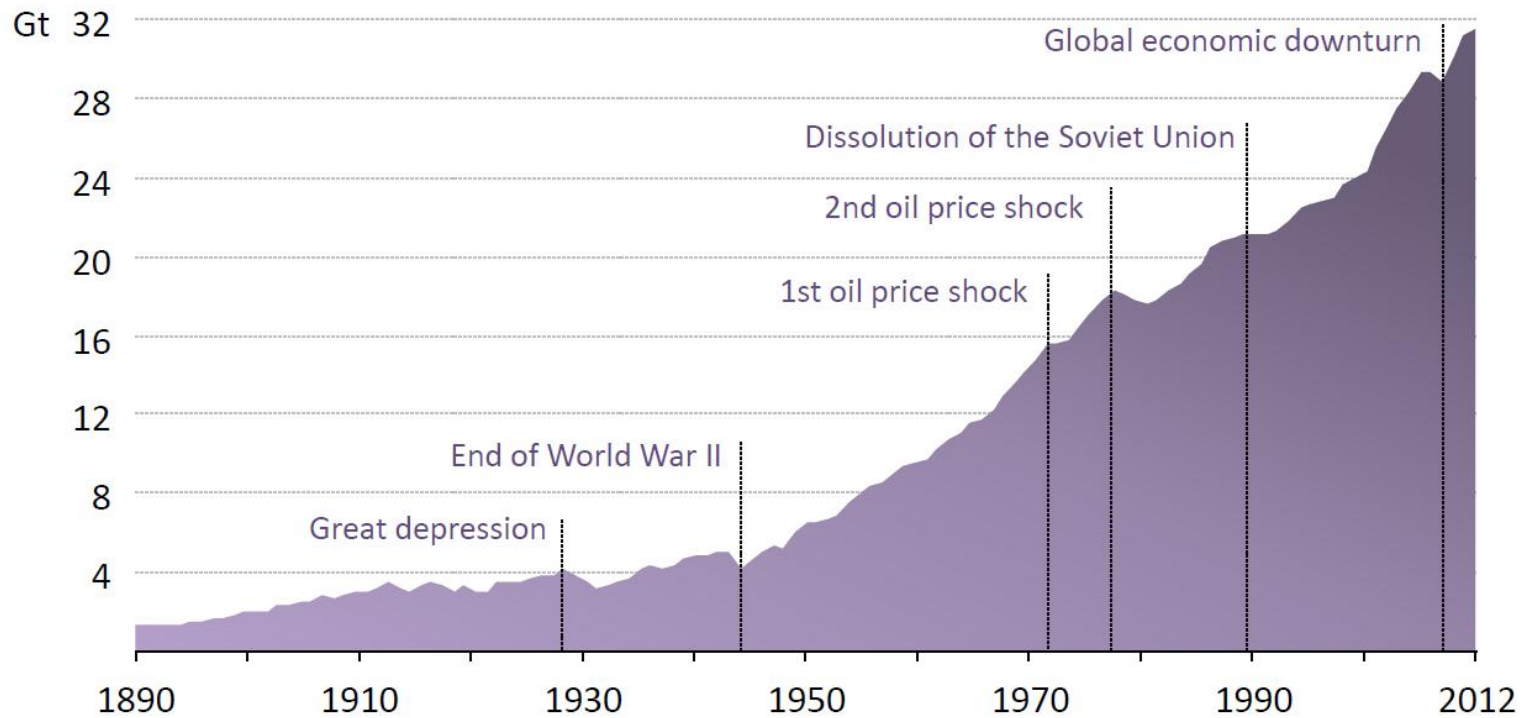
\* Key World Energy Statistics 2013, IEA

\*\* geothermal, solar, wind heat



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## Global energy-related CO<sub>2</sub> emissions

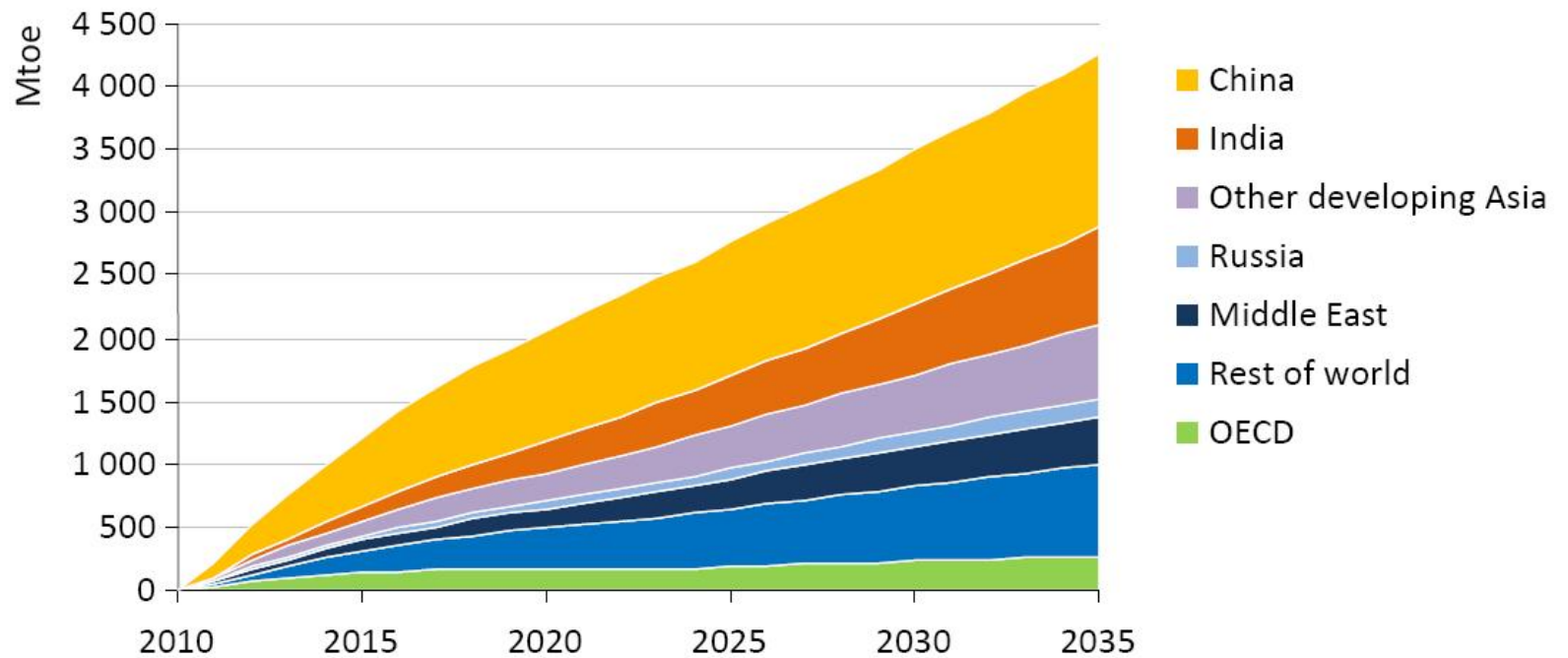


Source: World Energy Outlook, 2013, IEA



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### Growth projections in primary energy demand (2012)



Source: Key World Energy Outlook 2012, IEA



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How does the world address that challenge?

Europe\*

The Americas\*



Asia\*

Africa and Middle East\*

\* Commitments made during the 2014 UN Climate Summit in NY (2014)



## Europe

**European Union:** Cut emissions by 40% by 2030 compared to 1990 levels, and aspire to cut emissions by 80 to 95% compared to 1990 levels by 2050.

**United Kingdom:** Cut emissions by 80% by 2050

**Denmark:** Reduce emissions by 40% in 2020 compared to 1990 levels. The country aims to be fossil free by 2050.

**Ireland:** Reduce greenhouse gases by 80% by 2050.

**Iceland:** Country says it's committed to becoming an entirely fossil fuel-free economy.

**Finland:** Phasing out coal in power stations by 2025.

**Monaco:** Reduce carbon emissions by 80% compared to 1990 levels by 2050.

**Cyprus:** Cut 40% greenhouse gas reduction as part of the proposed EU 2030 framework.

**Belgium:** Reduce emissions by 85% by 2050 compared to 1990 levels.

**Investments in Renewables: Decreased from USD 86.4 billion (2012) to 48.4 billion (2013)\***



## The Americas

**United States:** Emission reductions of 17% below 2005 levels by 2020, announcement of new target in early 2015

**Mexico:** By 2018, more than one-third of electricity-generating capacity will be based on renewables.

**Nicaragua:** 90% of energy needs will be met through renewable resources by 2020.

**Costa Rica:** 100% clean energy by 2016.

**Trinidad and Tobago:** 100% of the country's electricity will come from natural gas, supporting net-zero global emissions goal before end of the century.

**Chile:** By 2025, 45% of Chile's energy will be green.

**Ecuador:** Country will build eight hydroelectric plants by 2017. Minister says clean energy will change the country's "energy matrix."

**Uruguay:** Reduce emissions by 85% by 2030.

**Investments in Renewables: Decreased from USD 56.4 billion (2012) to 51.3 billion (2013)\***





## Middle East and Asia

**Brunei:** 63% reduction in energy consumption by 2035.

**Indonesia:** Cut emissions by 26% by 2020, says it can raise that number to 40% with international help.

**Malaysia:** On target to reduce emissions by 40% by 2020.

**Korea:** Next year, Korea says it will become the first Asian country with a national trading scheme. It also pledged \$100 million to Green Climate Fund.

**Republic of Palau:** Supports World Bank initiative to place price tag on carbon.

**China:** Cut carbon intensity up to 45% by 2020 over 2005 levels, announcement for post 2020 in early 2015

**Kazakhstan:** Country has launched its own emission trading system that will help it move toward a low-carbon economy.

**Israel:** Shifting from coal to natural gas in order to produce clean energy.

**India:** Double amount of energy from wind and solar by 2020.

**Investments in Renewables: Increased from USD 96.3 billion (2012) to 105.7 billion (2013)\***



## Africa and Middle East

**Ethiopia:** President says the country will have zero net emissions by 2025.

**Mozambique:** Country will promote a low-carbon economy as a national priority.

(...)

Investments in Renewables: Decreased from USD 10.4 billion (2012) to 9 billion (2013)\*

\* Renewables Global Status Report (2014)



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## Developments in Renewable Energy Deployment and further measures

China

(accounts for 28% of global emissions, 2013\*)

USA

(accounts for 15% of global emissions, 2013\*)

EU-28

(accounts for 10% of global emissions, 2013\*)

# China



## Development:

- China accounts for 24% of global installed renewable power capacity (2013)
- Introduction of feed-in-tariffs in 2011
- Compared to 2005, capacity of
  - hydro power generation increased 2 folds (30.5 GW new installed capacity in 2013\*)
  - wind power generation increased by 60 folds (14.1 GW in 2013\*), and
  - solar power generation increased by 280 folds (in 2013 China set a new record in new installed capacity of 12 - 14GW\*)

## Planned:

- Increase of another 16 GW new installed solar power capacity in 2014
- Total increase of non fossil energy supply from 7 to 11% until 2015\*
- In May 2014 China signed a 30-year deal with Russia to provide natural gas in order to lessen dependence on and use of coal
- 13th five-year-plan (2016 – 2020) may eye an emissions cap

\* Estimates by Bloomberg New Energy Finance (2014)

\*\* According to China's 12th five-year-plan (2011 – 2015)

USA



**Development:**

- Reduction of emissions 2005 – 2012 by 10%\*
- Emissions of coal power plants were reduced by 13% since 2005
- From 2004 to 2014 solar power generation increased by 130 folds (to currently 13 GW)
- Share of renewable energy production rose from 2004 to 2014 by 4.1 % (12.9 % of total energy production comes from renewables)
- Average fuel consumption of new passenger cars fell from 11.7 to 9.3 litres / 100 kilometers (corresponds to a reduction of 157 mio. tonnes of CO<sub>2</sub>)\*\*

**Planned:**

- June 2014: Announcement to limit emissions from 600 coal power plants by 25/30% up to 2020/2030 – compared to 2005
- April 2013: Announcement to become independent from energy imports by 2035 (?!)
- Further reduction of fuel consumption from new passenger cars to 4.3 litres / 100 kilometers by 2025

\* Environmental Protection Agency, EPA (2014)

\*\* Based on sales of new passenger cars since 2007, University of Michigan (2014)

EU-28



**Development:**

- Reductions of emissions by 19.2 % compared to 1990\*
- Share of renewable energy production increased from 8.3 % (2004) to 14.1 % (2012)\*\*

**Planned:**

- Achievement of the 20-20-20 target by 2020
- GHG reductions by 40% until 2030 envisaged
- (Legally binding) Increase of efficiency in buildings: By 2020 all new buildings shall be nearly zero-energy consumption buildings, new buildings occupied and owned by public authorities shall comply with the same criteria by 2018\*\*\*
- (Legally binding) Efficiency increase of new passenger cars: The fleet average to be achieved by all new cars is 5.6 litres per 100km (130 g CO<sub>2</sub>) by 2015 and 4.1 litres per 100km (95g/km) by 2021\*\*\*\*

\* European Environmental Agency, EEA (2014)

\*\* Eurostat (2014)

\*\*\* Directive 2010/31/EU

\*\*\*\* Regulation (EC) 443/2009



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**THANK YOU**

[www.climatefoundation.li](http://www.climatefoundation.li)  
[info@climatefoundation.li](mailto:info@climatefoundation.li)