WORLD BIOGAS ASSOCIATION

# Nordic Biogas Conference 2019

David Newman, President World Biogas Association

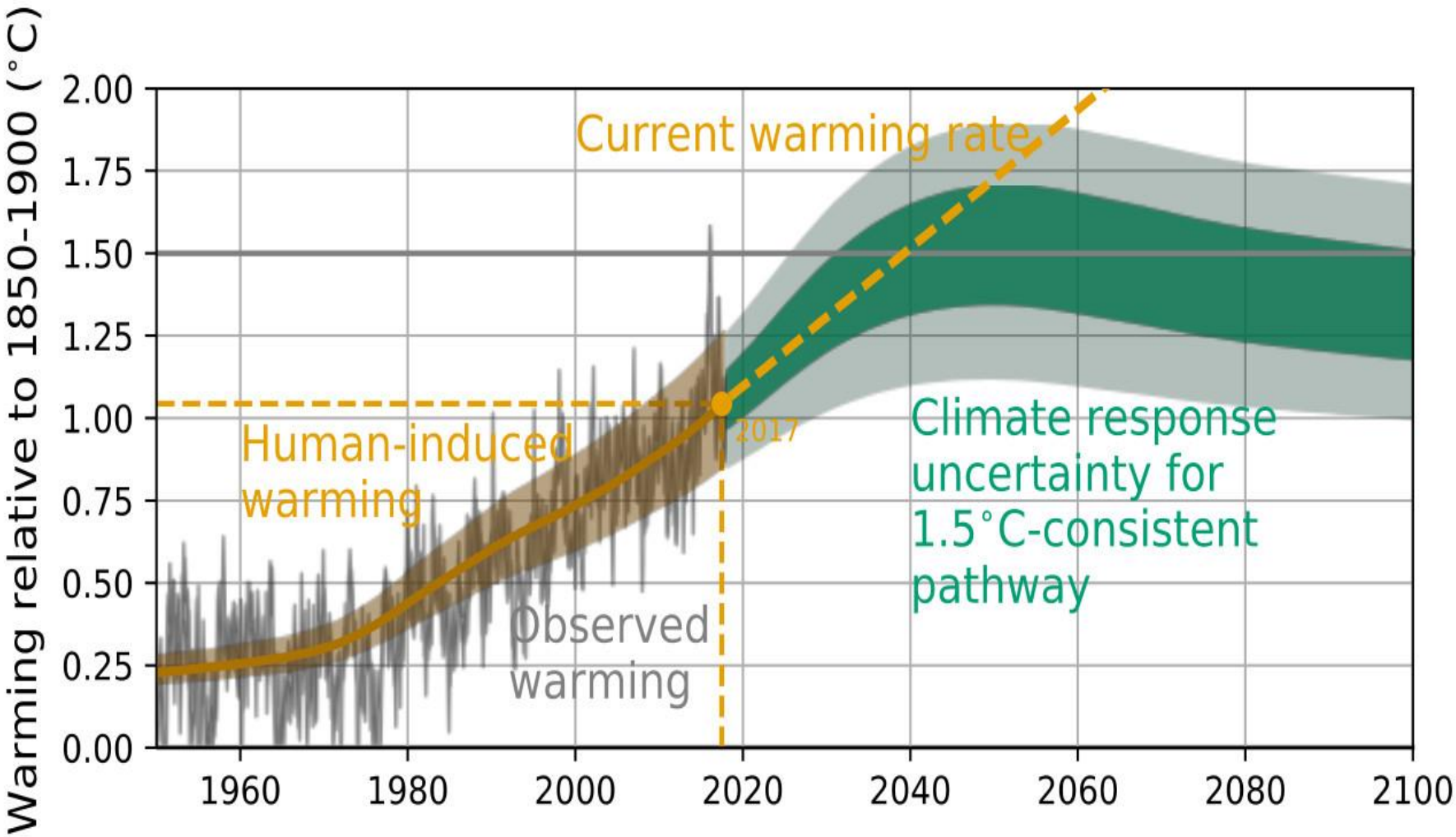
# Who is the World Biogas Association ?

- A global association for the promotion of the biogas industry
- Founded in 2016 by 4 major national associations including ADBA and 16 major biogas companies
- Collaborating with international organisations to drive the policies around climate change and SDGs and investments in biogas technologies
- Food waste, sewage, agriculture, small scale too
- Easy to join and participate, open to all

# The Climate Change Process
# Paris 2015 to Katowice 2019

- Process is complicated and outcomes uncertain
- Total unanimity is required for every vote
- US withdrawal disruptive
- Has strengthened Australia, Canada, Russia, Saudis, Brazil against climate change logic
- The “big deal” was money V commitments
- Missing some $30-40 billion for 2020 commitment
- Yet the need for action is more urgent every day

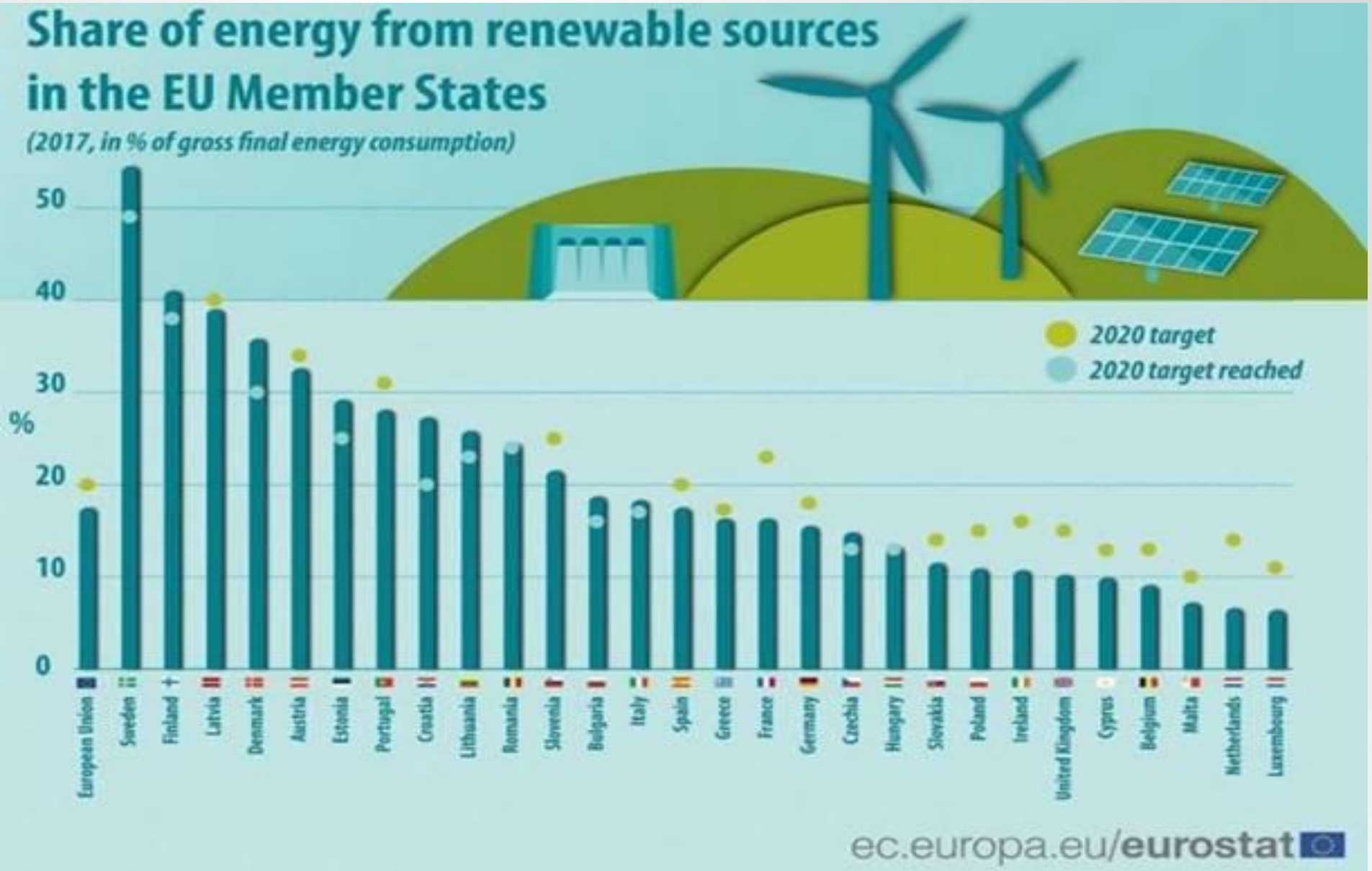
# Where are we ?

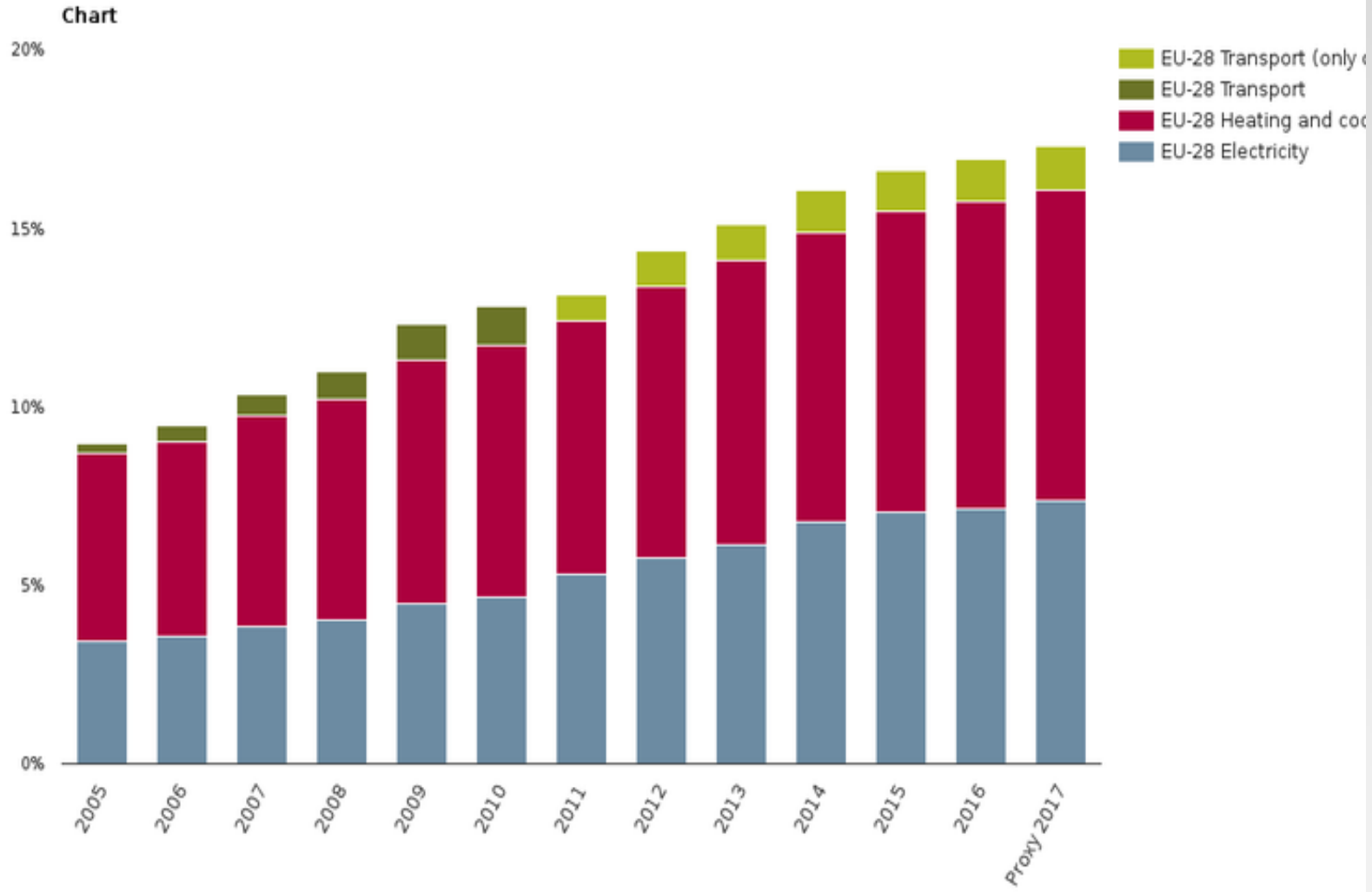



Source: IPCC Special Report on Global Warming of 1.5°C, Chapter 1 – Technical Annex 1.A, Fig. 12

# Just 2 countries have implemented policies to meet the 1.5°C 2100 target

# A long way t-EU go






Source: European Environment Agency

Overall renewable energy production is actually still less than 17% across the EU28.

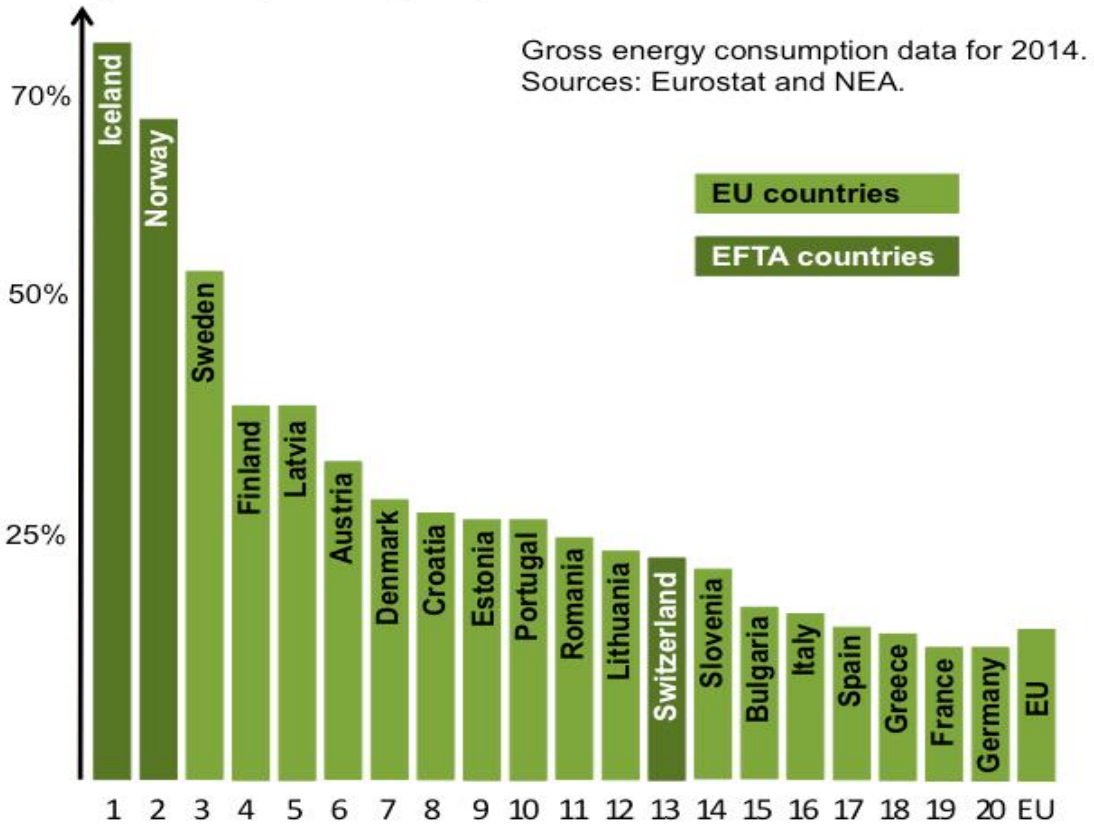
# Norway is second in Europe for renewable energy production and has 98% renewable electricity

## ICELAND IS EUROPE'S GREEN ENERGY LEADER

| | | |
|---|---|---|
| 1. | **Iceland** | 77 % |
| 2. | Norway | 69 % |
| 3. | Sweden | 53 % |
| 4. | Finland | 39% |
| 5. | Latvia | 39% |
| 6. | Austria | 33% |
| 7. | Denmark | 29% |
| 8. | Croatia | 28% |
| 9. | Estonia | 27% |
| 10. | Portugal | 27% |
| 11. | Romania | 25% |
| 12. | Lithuania | 24% |
| 13. | Switzerland | 23% |
| 14. | Slovenia | 22% |
| 15. | Bulgaria | 18% |
| 16. | Italy | 17% |
| 17. | Spain | 16% |
| 18. | Greece | 15% |
| 19. | France | 14% |
| 20. | Germany | 14% |
| 21. | Czech Republic | 13% |
| 22. | Slovakia | 12% |
| 23. | Poland | 11% |
| 24. | Hungary | 10% |
| 25. | Cyprus | 9% |
| 26. | Ireland | 9% |
| 27. | Belgium | 8% |
| 28. | UK | 7% |
| 29. | Holland | 6% |
| 30. | Luxembourg | 5% |
| 31. | Malta | 5% |
| | EU average | 16% |

Share of renewable energy (percentage) in gross final energy consumption.
Graph shows top-20 European green countries within EU and EFTA.

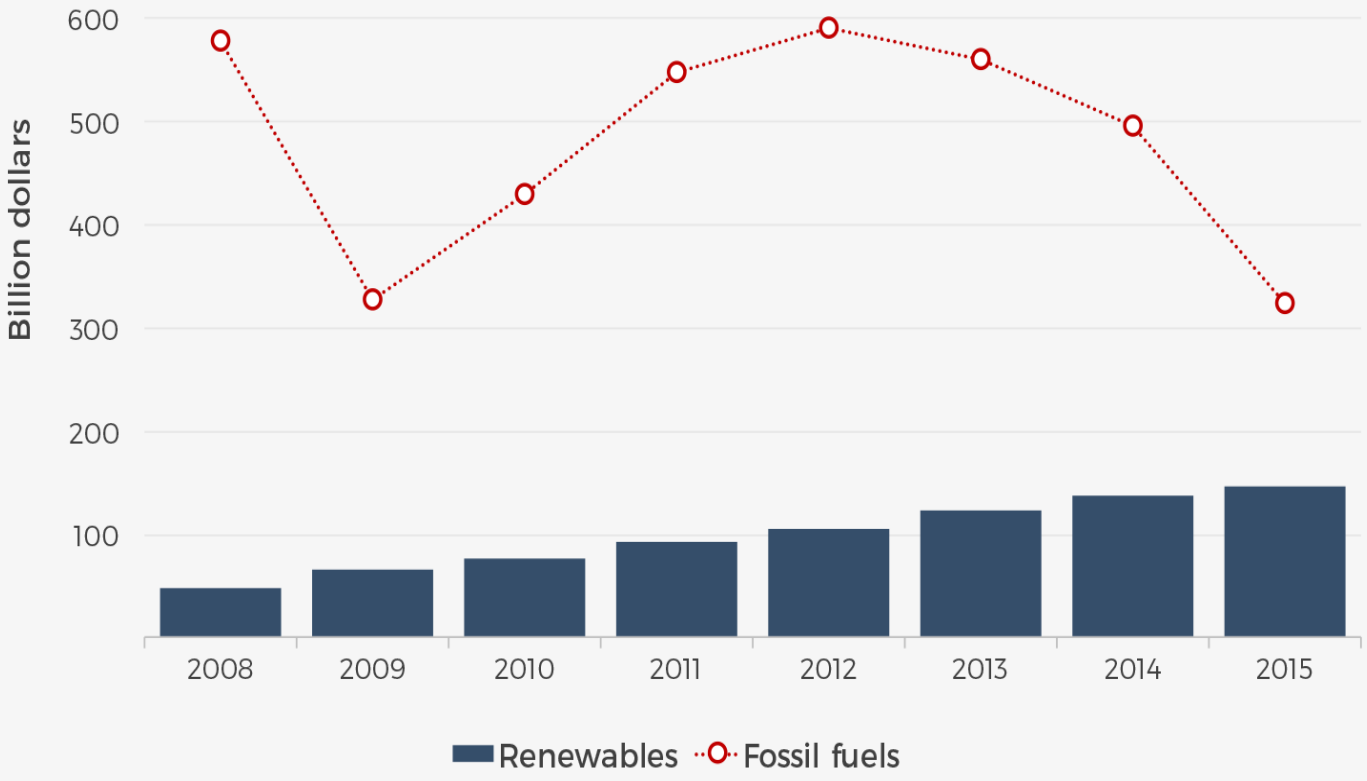
Gross energy consumption data for 2014.
Sources: Eurostat and NEA.



# Incentives to renewables have helped develop the industry but are still less than half of fossil fuel subsidies

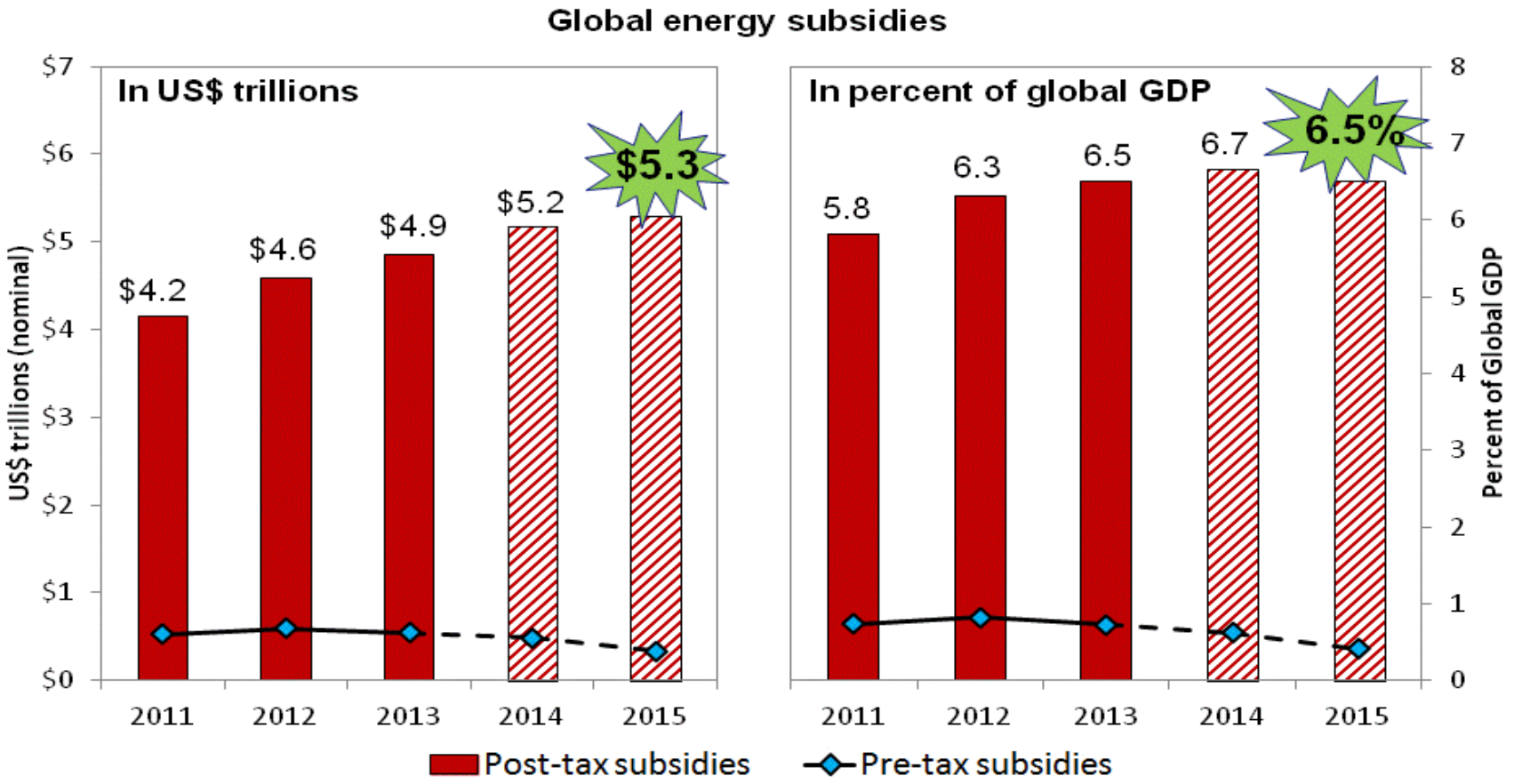
## Global subsidies for fossil-fuel consumption and renewables

World Energy Outlook 2016



# Yet subsidies and incentives are still climate negative !

## Global energy subsidies are $5.3 trillion




Pre-tax consumer subsides arise when the price paid by consumers is below the cost of supplying energy. Post-tax consumer subsidies arise when the price paid by consumers is below the supply cost of energy plus an appropriate "Pigouvian" (or "corrective") tax reflecting the environmental damage associated with energy consumption and an additional consumption tax that should be applied to all consumption goods for raising revenues.

“Global energy subsidies increased from US$4.2 trillion in 2011 to US$5.3 trillion in 2015. In percent of GDP, global energy subsidies increased from 5.8 percent of global GDP in 2011 to 6.5 percent in 2015.

They exceed global public health spending, estimated by the World Health Organization at US$4.3 trillion in 2013.

**It is one of the largest negative externalities ever estimated**.”

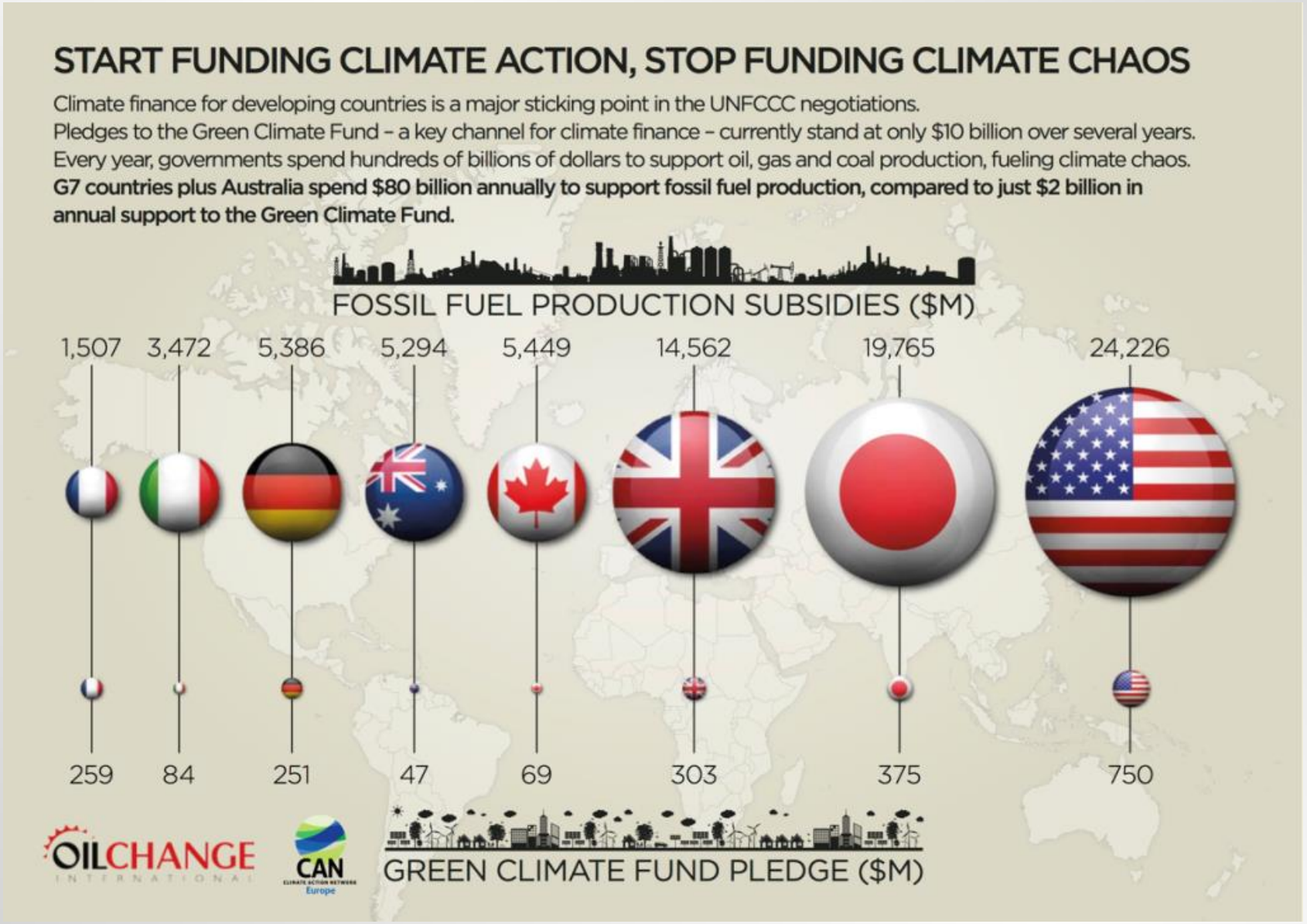
(source, IMF)

# The cost of fossil energy subsidies…

## Costs are far-reaching …..

- **Exacerbate environmental damage**
  - Local pollution, traffic congestion and accidents, road damage, and global warming
- **Worsen inequality**
  - Most of the benefits are captured by rich households
  - Better targeted policy instruments are often available or can be quickly developed
- **Retard economic growth**
  - Discourage energy investments and encourages energy inefficiency
- **Fiscally costly**
  - Which requires higher distortionary taxation and crowds out high priority spending (education, health, infrastructure)

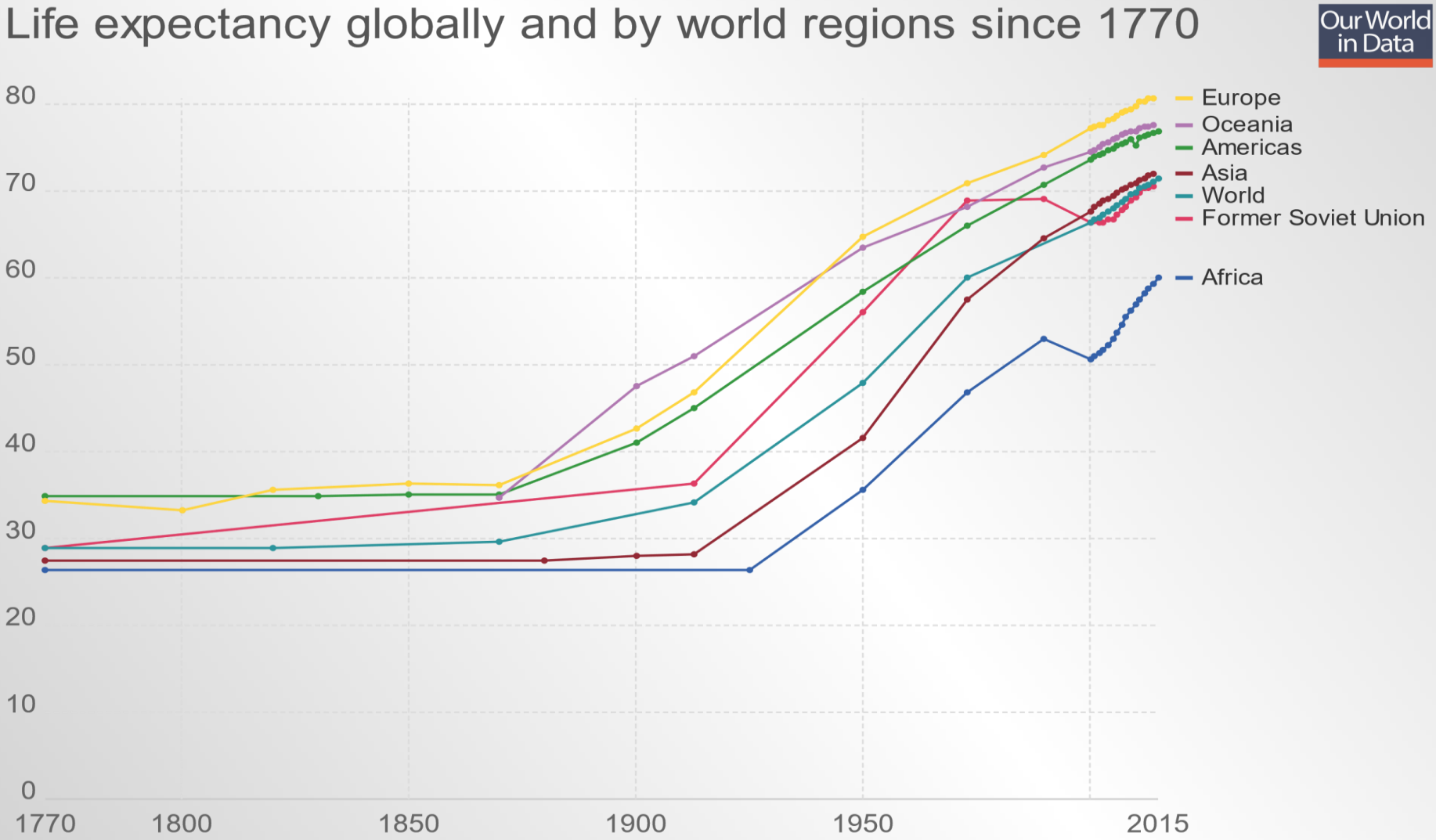
# We are almost all guilty of paying lip service to climate change.



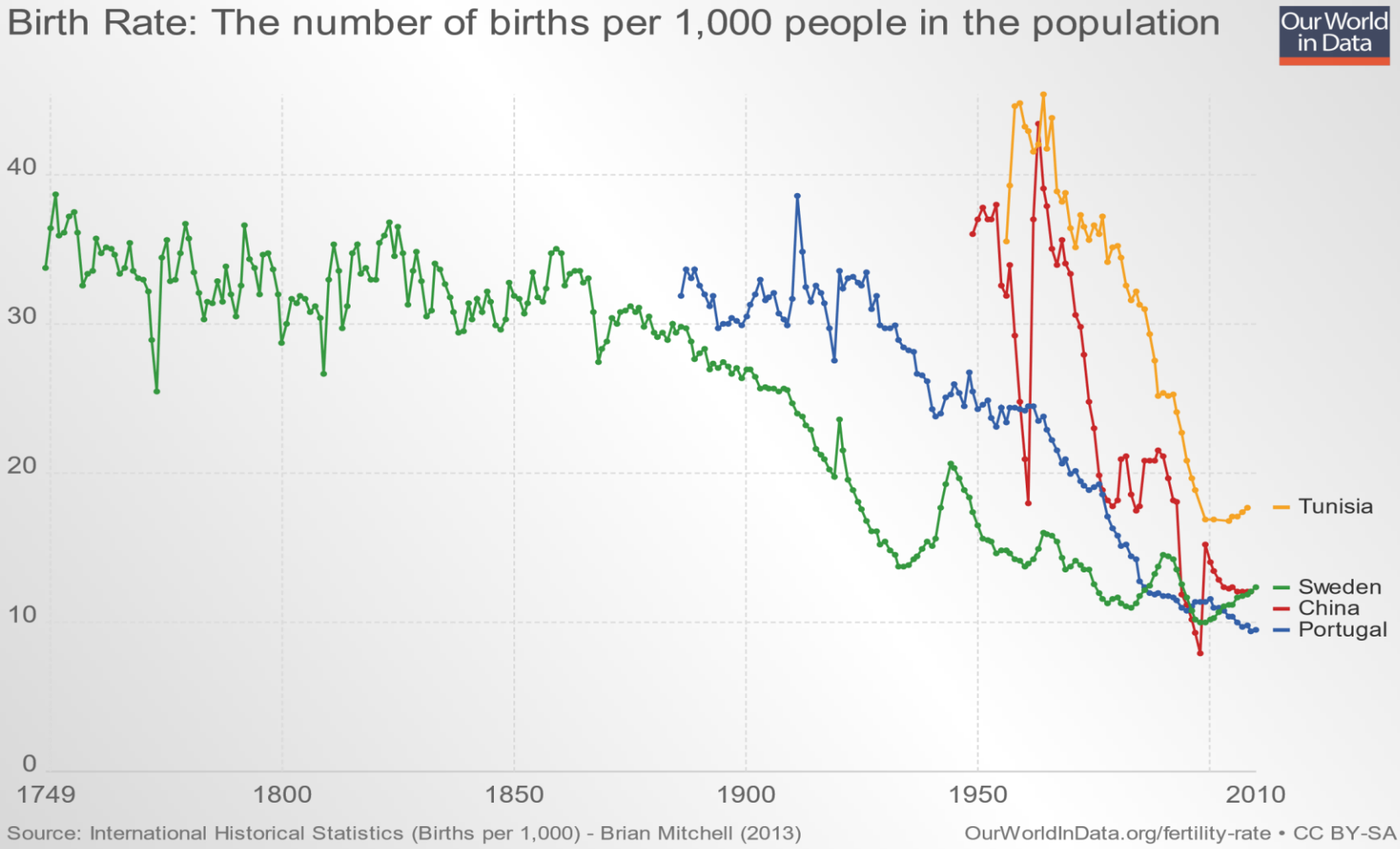
# But it is not all bad news…..

*We should not despair, let's be optimistic, if we despair all is lost….*

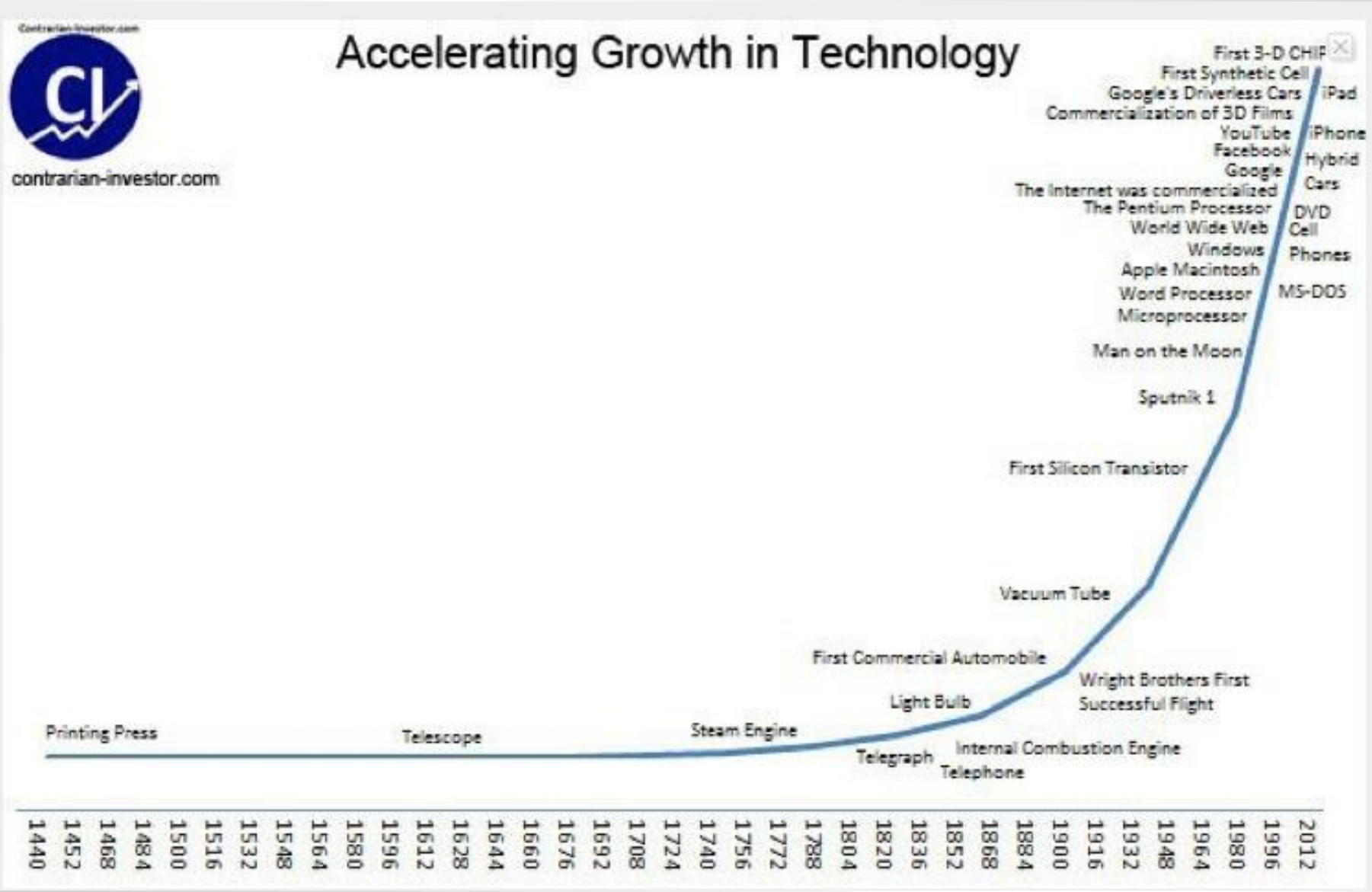
# Humans have shown we are capable of miracles



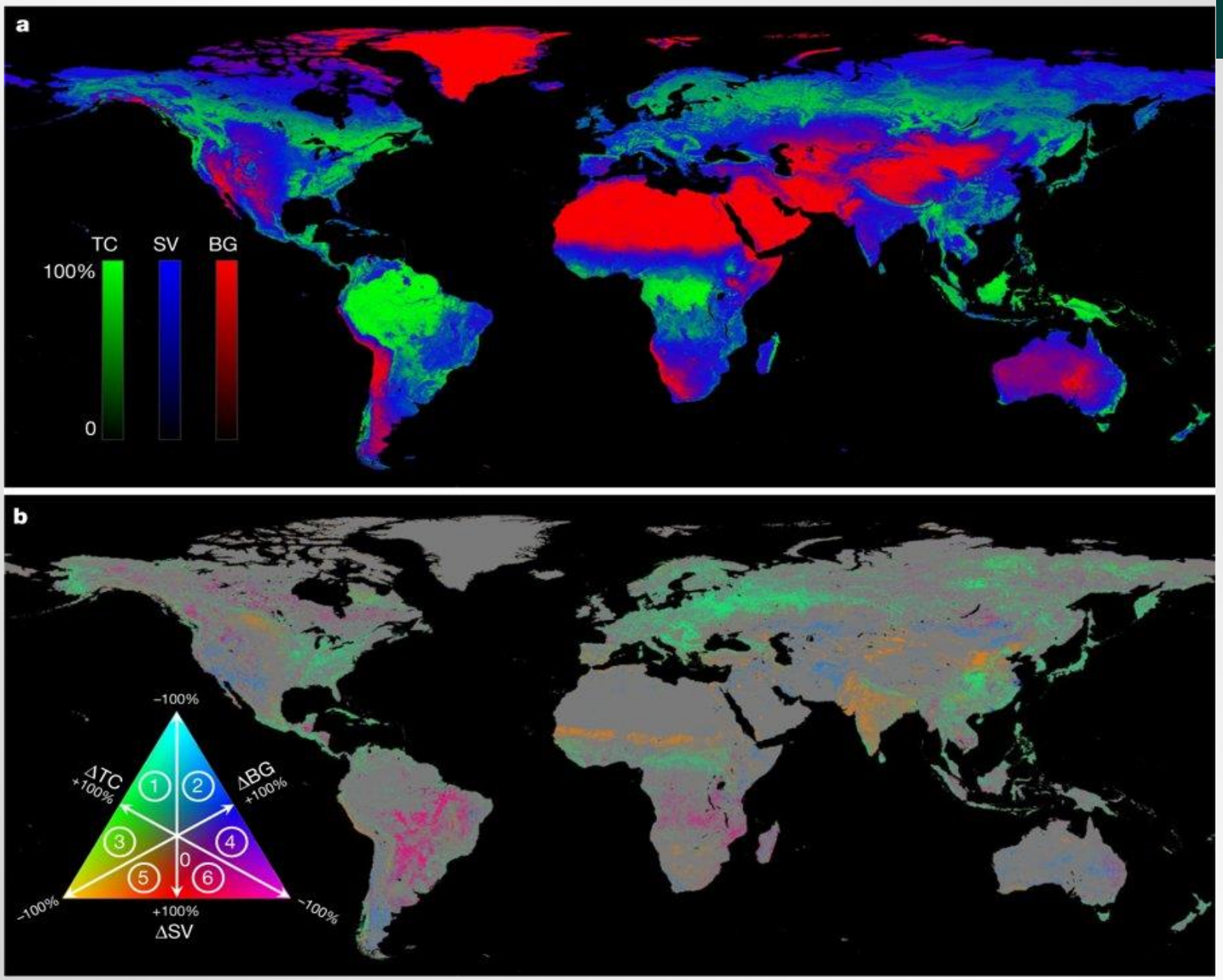
# Birth rate falling rapidly



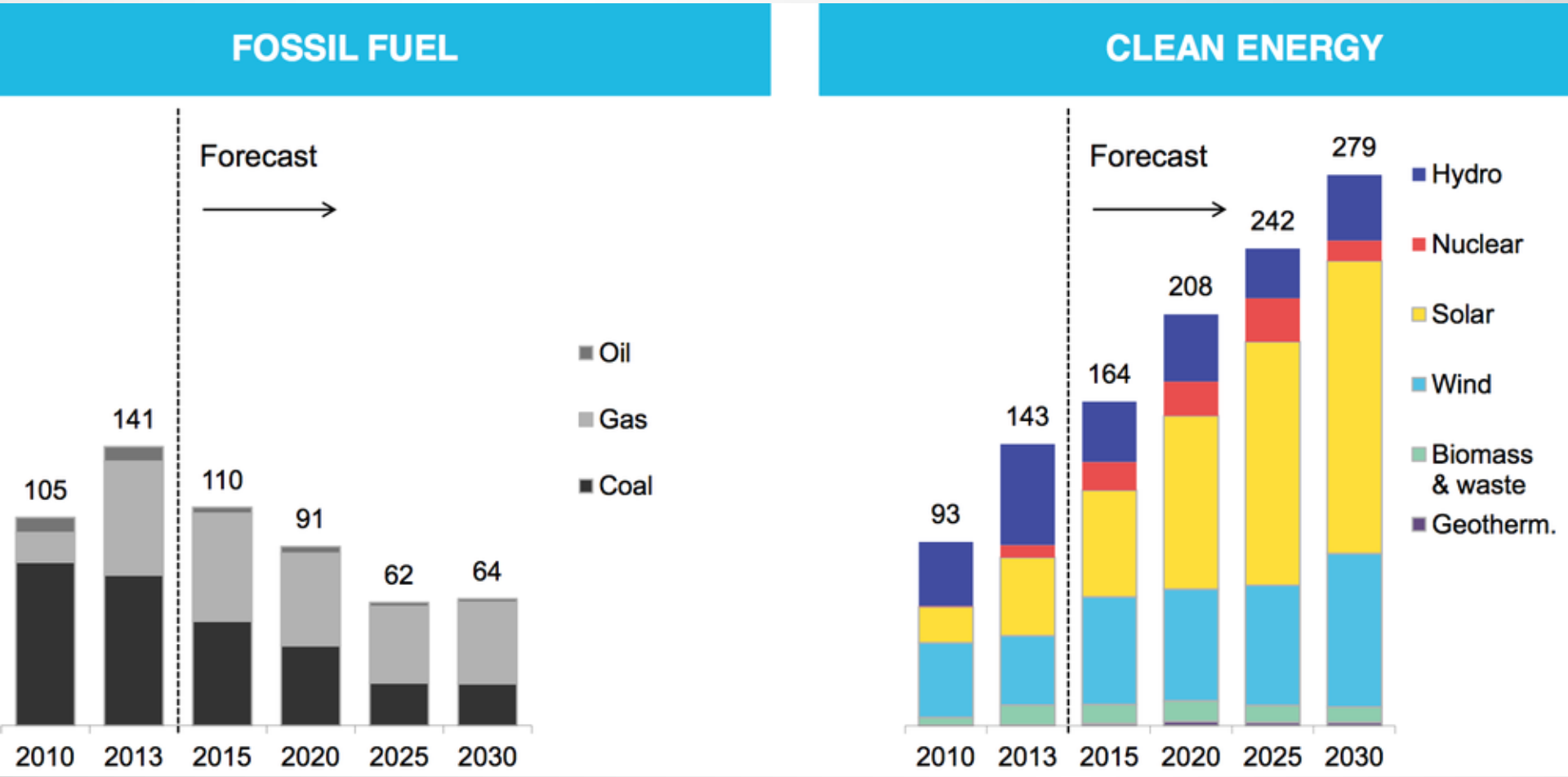
# Technology change is intensifying



# Reforestation across the Planet exceeds deforestation rates according to NASA

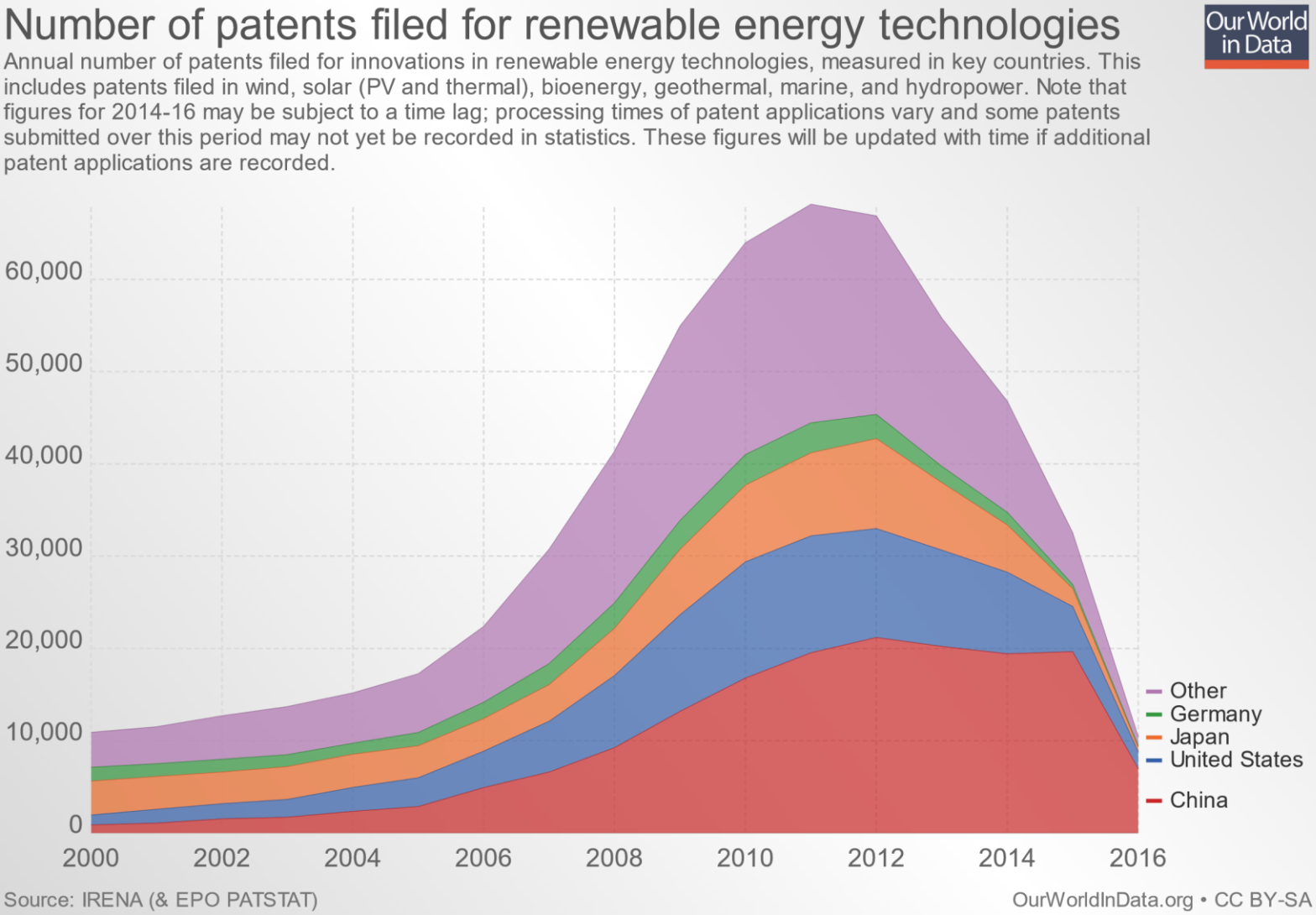


# Renewables investments growing faster than fossil fuel investments

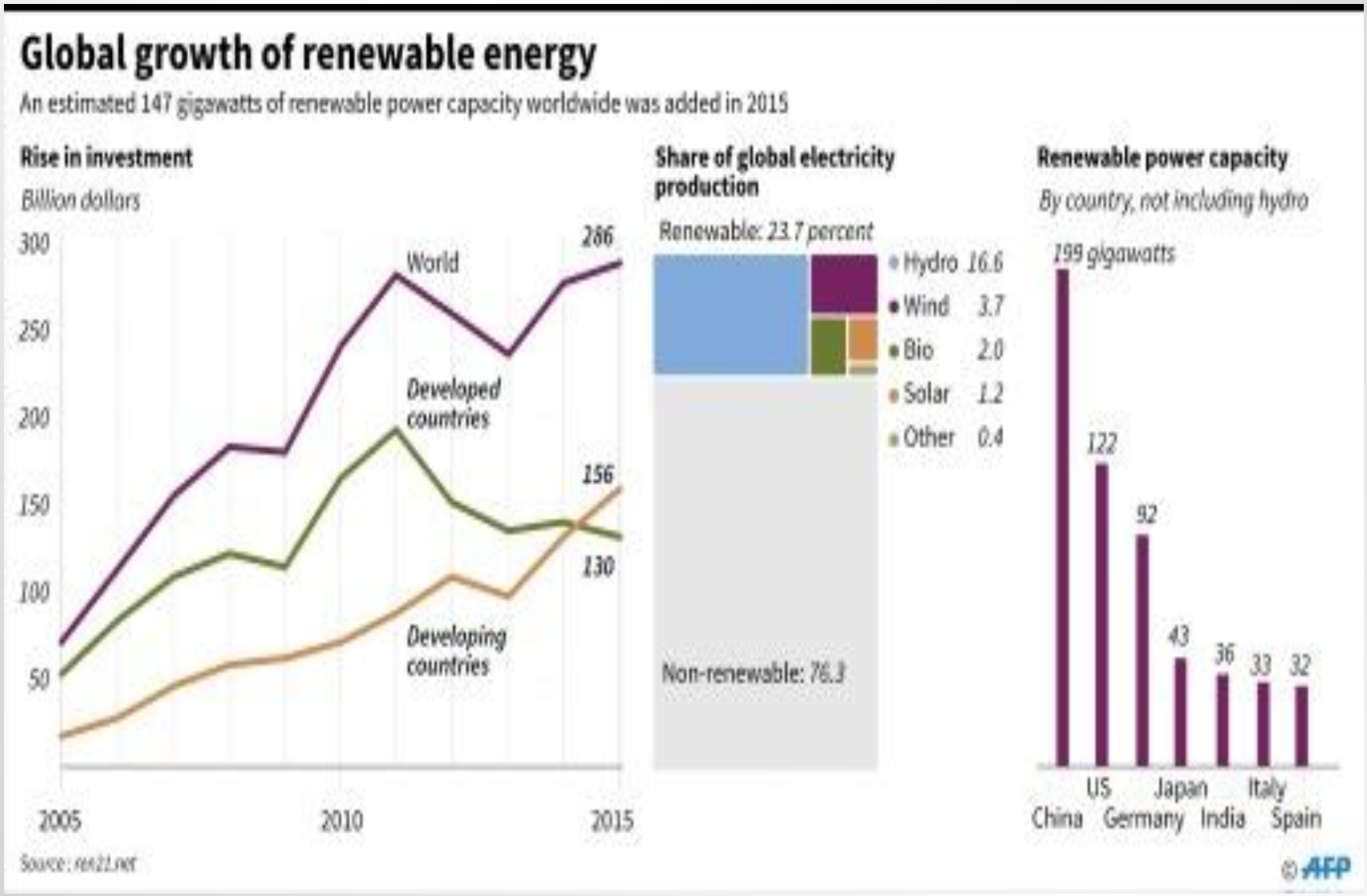



Source: Bloomberg

# Slowing of patents for renewables suggest industry has reached technological point of maturity

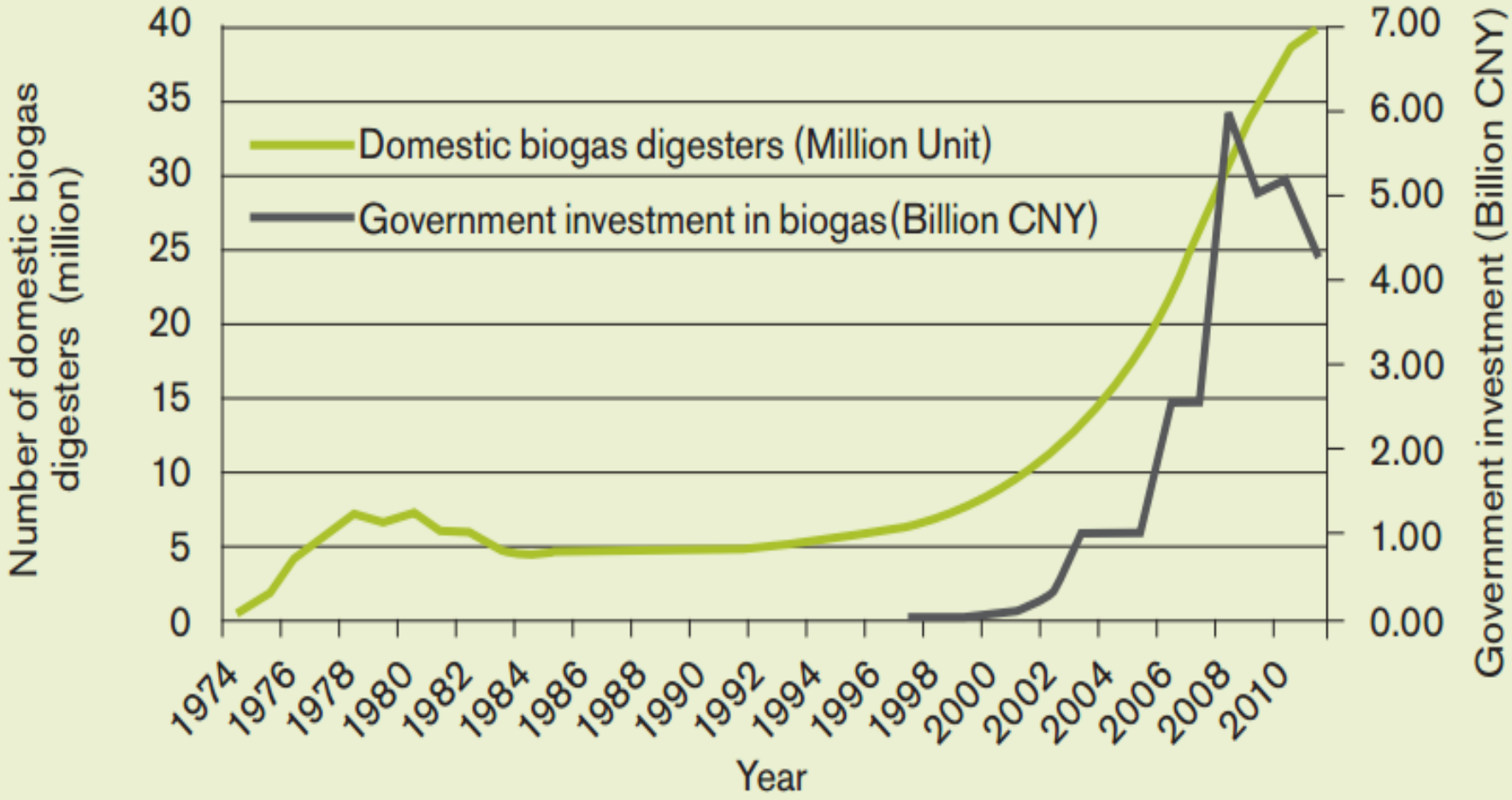


# Developing nations are finally moving on GHG



# China's biogas boom

**Figure 2. Number of domestic biogas digesters and government investment in biogas, China (1974–2011)**




Note: biogas digester figures are cumulative, while investment figures are annual.

# Food waste collections in EU will reduce GHG emissions and produce biogas, compost

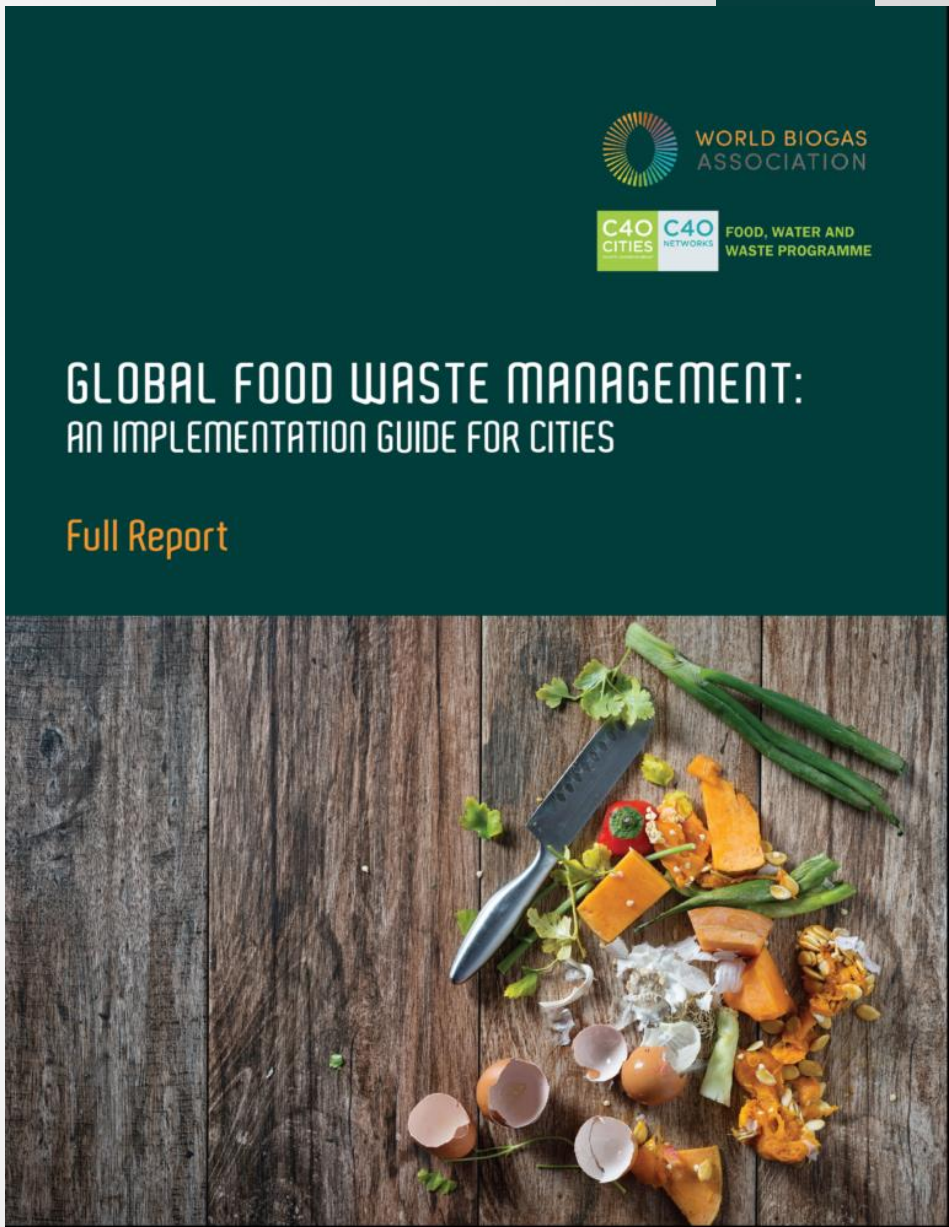
CITIES AND CIRCULAR ECONOMY FOR FOOD

ELLEN MACARTHUR FOUNDATION

Just 2% of global food waste and loss is recycled back to earth and to energy

# Urban Food Waste Management report published in 2018

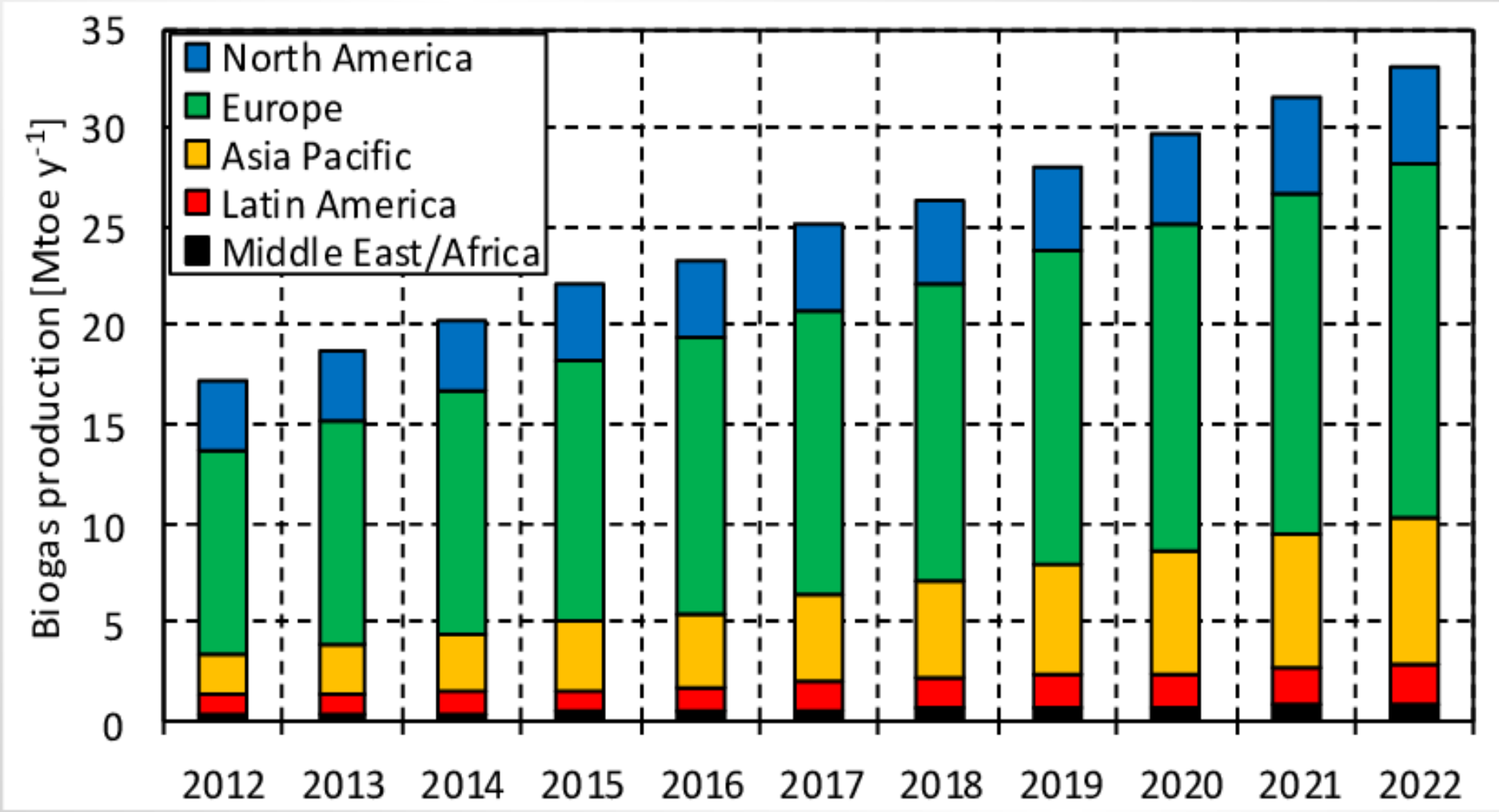
The opportunity in Europe following the obligation of food waste collections by 2023 is enormous




Download for free
OSLO City one case study

http://www.worldbiogasassociation.org/food-waste-management-report/

# Global potential of biogas




Global biogas production in 2012 and its trend to 2022 (Raboni and Urbini, 2014)

# Biogas production in top 5 countries in 2014

**China** 15.0

**USA** 8.48

**Thailand** 1.30

**India** 0.81

**Canada** 0.79

**Total (Top 5)** 26.4

**EU - 28** 28.9

**World** 58.7

All values in billion Nm3. Top 5 excluding the EU – 28. Source: IEA Key World Energy Statistics

# And other outputs…

The benefit of biogas is not just gas (there is plenty of gas everywhere) but in the unique ability to mix:

Treatment

Food waste, sewage, agricultural residues, palm oil effluent, crops,

agro-industrial wastes, reducing load on environment and GHG emissions by 10-15% globally.

Outputs

Producing gas and nutrients- digestate, nitrogen, $CO_2$, heat

# Conclusions: the challenges we face

Globally we need to eliminate fossil fuel subsidies to create a level playing field in the energy markets and support the Green Climate Fund.

Our industry has to improve performance, eg methane leakage and energy conversion rates

We need to focus on best environmental outcomes for biogas- eg vehicle fuel.

Managing digestate outputs is challenging, eg ammonia emissions,
nitrate leaching

Making full use of resources, eg Co2, heat, digestate

Systemic consolidation >600,000 tonnes treated capacity near cities eg Milan:
15.8 electric MwH; 32 million M3 biomethane; 38,000 T liquid Co2; 90,000T compost

# Thanks for your attention

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