

Plenary Symposion I

Development towards a sustainable energy system; the local, regional and global boundary conditions

Chairs: M.Dittmar (ETH-Zürich) and L. Wirl (ENSSER)

- Introduction: Lukas Wirl (ENSSER) and M.Dittmar (ETH-Zürich)
- Energy resource constraints for a transition towards sustainability
Michael Dittmar (ETH-Zürich)
- Potential and limits of new renewable energy projects
Hartmut Graßl (VDW, former Direktor of the MPI for Meteorology)
- The great transition towards sustainability: **Can we live sustainable and well within the natural boundary conditions?**
A few slides (M. Dittmar) to start the Plenary discussion (all)

Our way of life is not sustainable: How much time is left for rational changes?

“Bridges” usually collapse at their weakest point:
Choose your favoured “Achilles heel” of the global industrial civilisation
(or just for Western Europe or your country)

1. The economic crisis and financial deficits?
2. CO2 emissions and climate change?
3. Energy (oil) resources (imports)? (our main topic today!)
4. Unsustainable industrial agriculture?
5. World War III?,
6. Ebola, a human to human “deadly bird flue” or similar?
7. ... other problems?

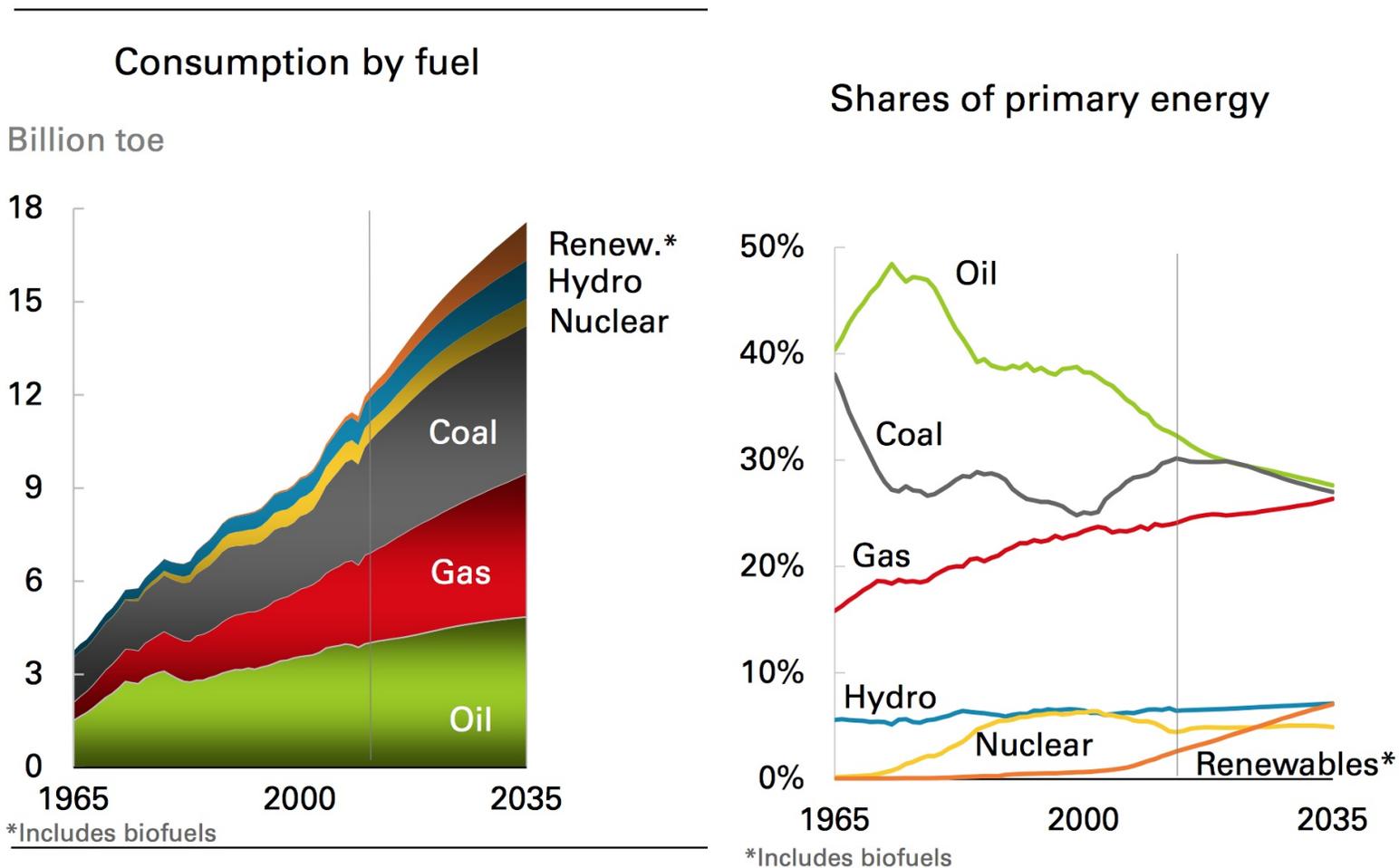
If we fail to understand and act, “mother nature” will decide for us!

Global energy demand growth 1965-2035?

British Petroleum (BP), January 2014 expects (NO LIMITS!):
factor 3-4 increase in new renewables (sun and wind),
but global demand growth can only come from oil, gas and coal!

Finite resources are not imaginable for most economists!

<http://www.bp.com/en/global/corporate/press/press-releases/energy-outlook-2035.html>



Energy Outlook 2035

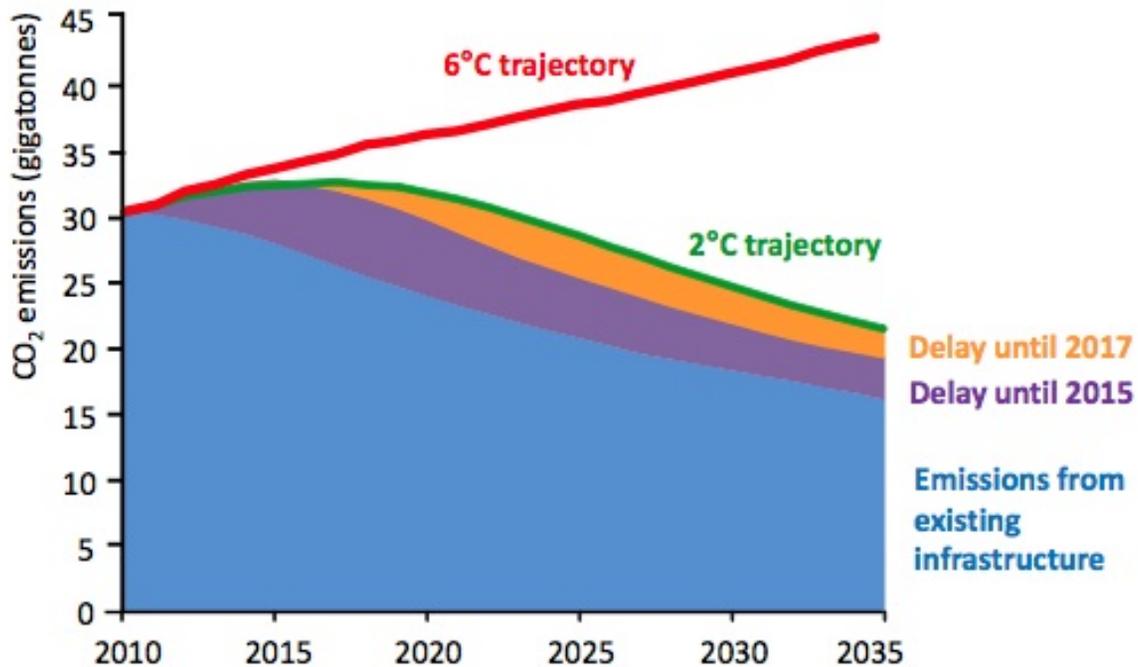
BAU collapse scenario (+6 degree C path to man made global hell!)

Plus 6 degree C, not the future world we want!

CO₂ emissions in 2013 ≈ 36 Gtons (2012 = 34.5 Gtons)

(a new world record, and well above the IEA (May 2011) scenario =31.6 Gtons!

<http://www.reuters.com/article/2013/11/19/us-global-carbon-emissions-idUSBRE9AI00A20131119>



Without further action, by 2017 all CO₂ emissions permitted in the 450 Scenario will be "locked-in" by existing power plants, factories, buildings, etc

Our energy system is unsustainable, but why should we care about the future?

“My interest is in the future because I am going to spend the rest of my life there.” http://en.wikiquote.org/wiki/Charles_Kettering

or with little variations for this Plenary Session:

- *“We are especially interested in **where we have our “roots”** because most of us are going to spend the rest of our life there.”*
- *“We are interested in a **healthy and beautiful local and global environment,** because our life depends on it.”*
- *“We should be interested in finding **a path towards a sustainable way of living** because of our **moral and ethical responsibilities** with respect to the biosphere and the well being of future generations.”*