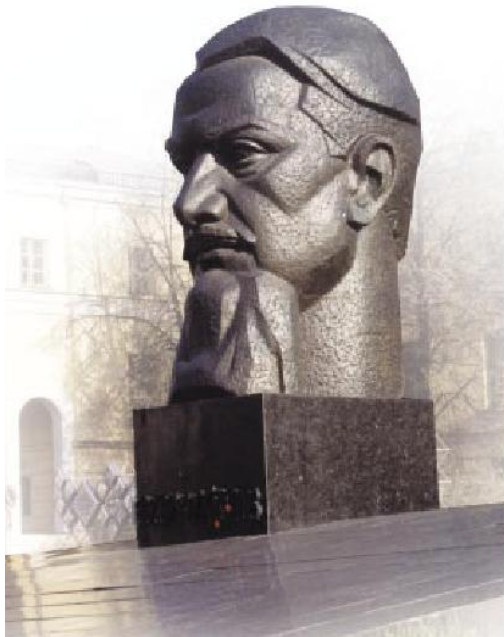


# **Energy scale of sustainable development**

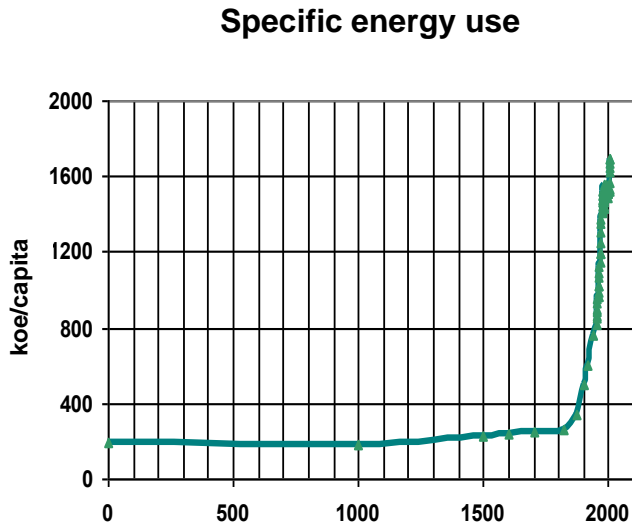
***Tsibulskiy V.F., PhD  
NRC «Kurchatov Institut»***

**July 2012 Paris**

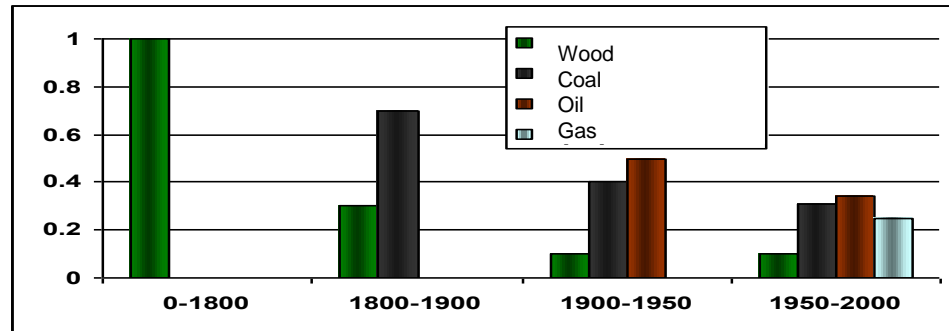
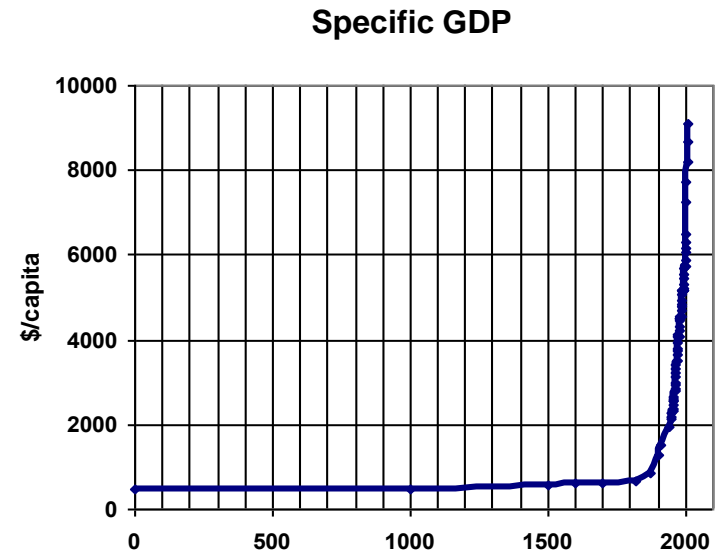


# History

## Growth of energy consumption



## Growth of economy



# **Sustainable Development**

***In report “Our common future” (1987) of International Commission of Environment determined:***

***Sustainable development is such a development which satisfy the requirements at the present time but doesn't endanger ability of future generation to satisfy their needs.***

A necessary condition is to form such an economic structure which will not restrain further development with recourses and ecological restrictions.

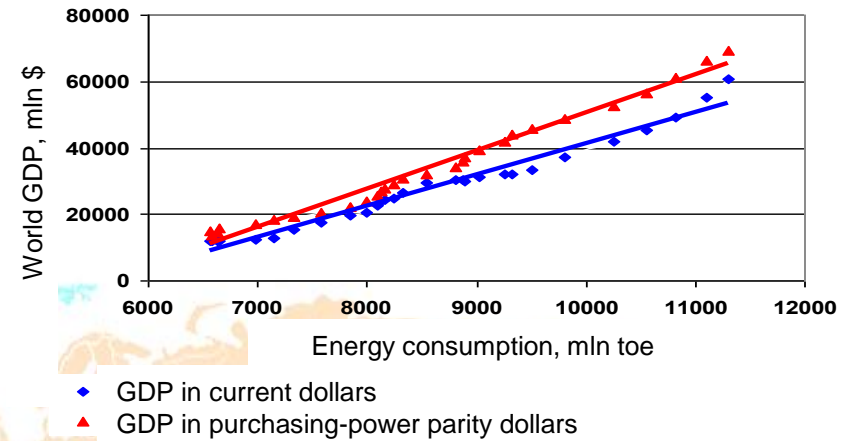
## **Feature of modern development**

Civilization development has reached the level when its features will be mainly formed with objective mechanisms. In such conditions activities of each participant will express themselves as statistical fluctuation.

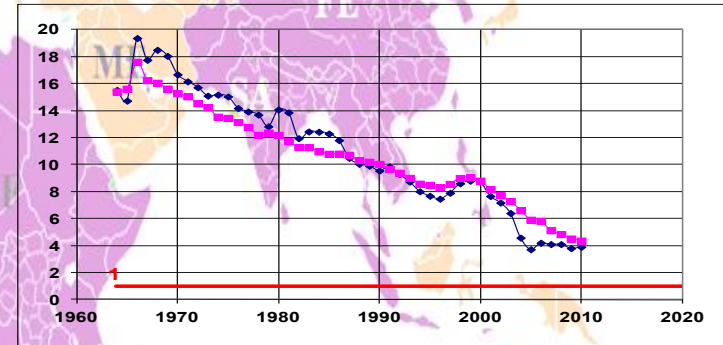
In other words, any local affects on global economic system, which contradict with dominant tendencies of development, will be quickly suppressed by system itself and trend will restore.

# The most important tendencies and correlations

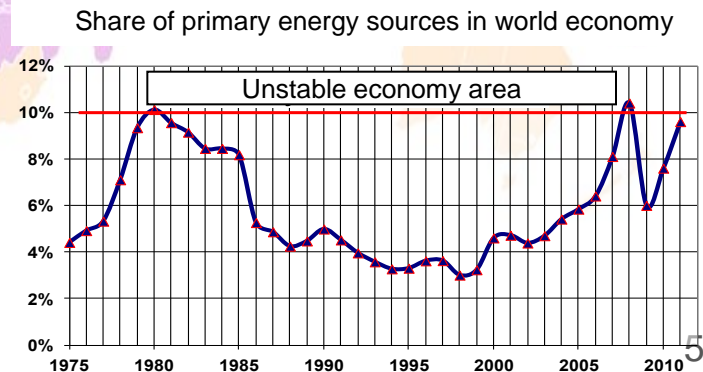
1) GDP is correlated with energy consumptions



2) Developing countries are becoming in energy consumption nearer to developed countries



3) Modern economic is oriented to using cheap primary energy

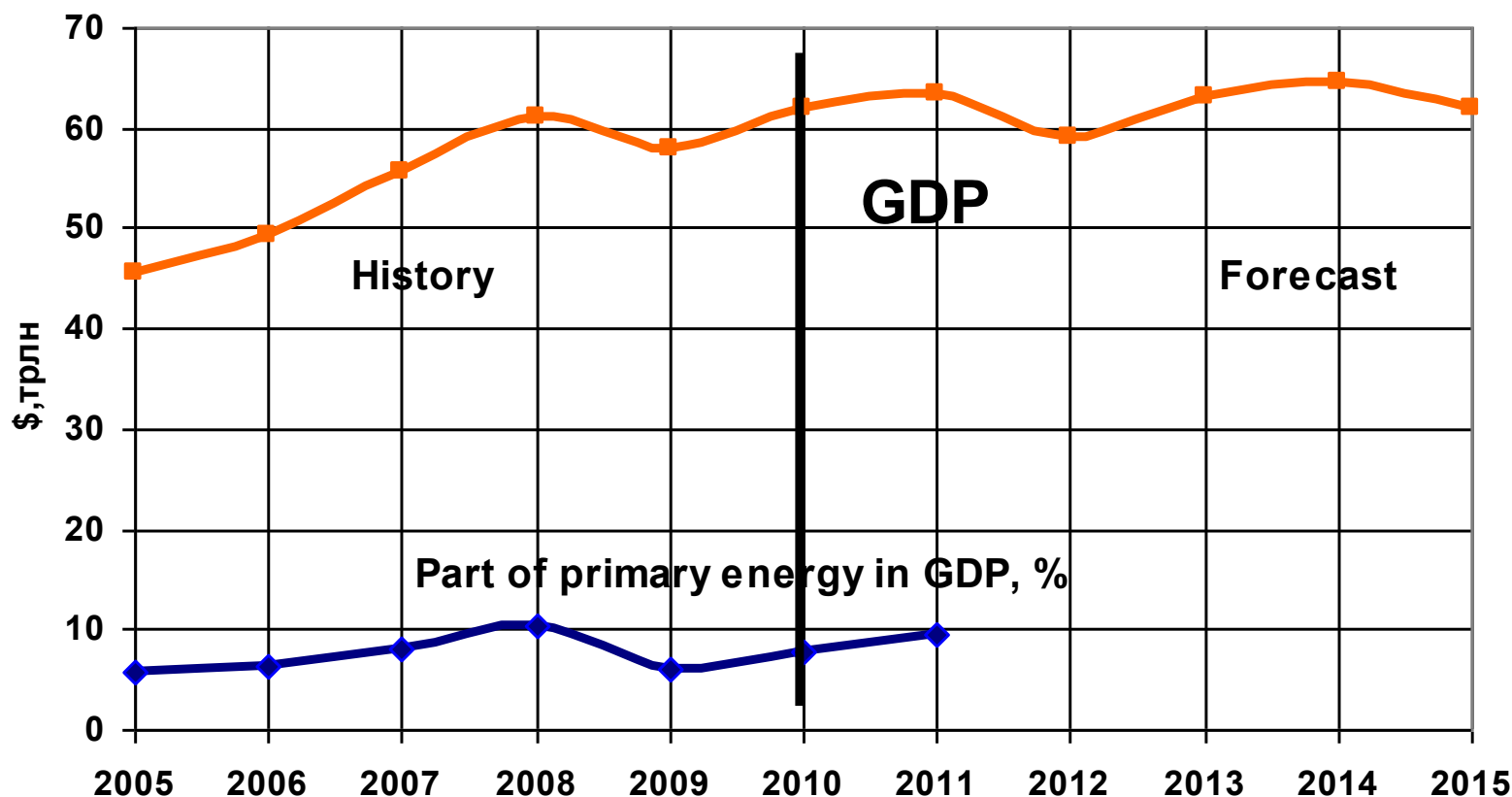


At present share of primary energy in world GDP is about 10%.  
This circumstance prevents to economy growth.

**Conditions of cycle crisis has formed.**

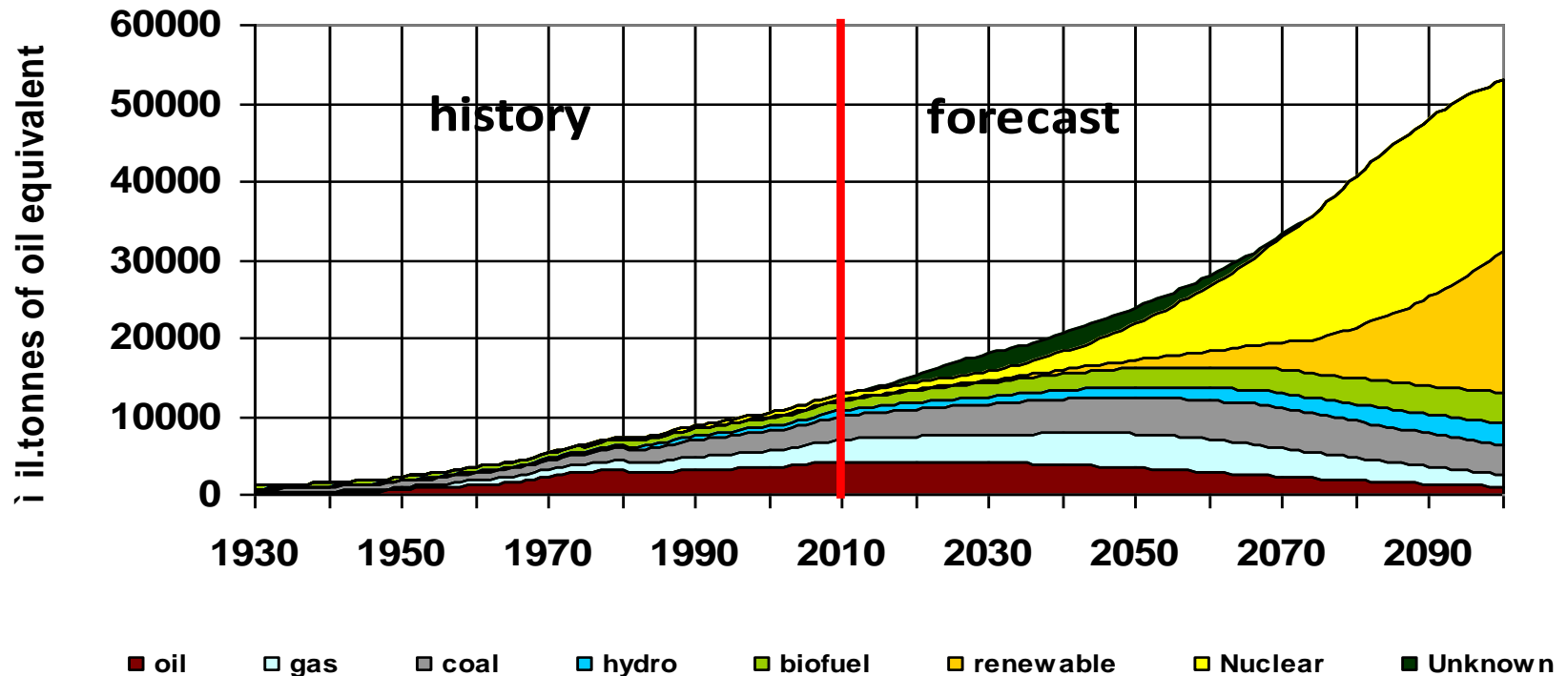
1. Energy is too expensive for economy, therefore economy falls.
2. Economy falls so energy price and consumptions falls.
3. Energy price has increased and economy becomes alive...

# World GDP growth prognosis taking into account price limits for primary energy recourses



**If meet the crisis, globalization will continue.  
Primary energy consumption will continue grow.**

### **Total primary energy supply, mil toe**



**Population growth by 2100 till 12 mlrd. people**

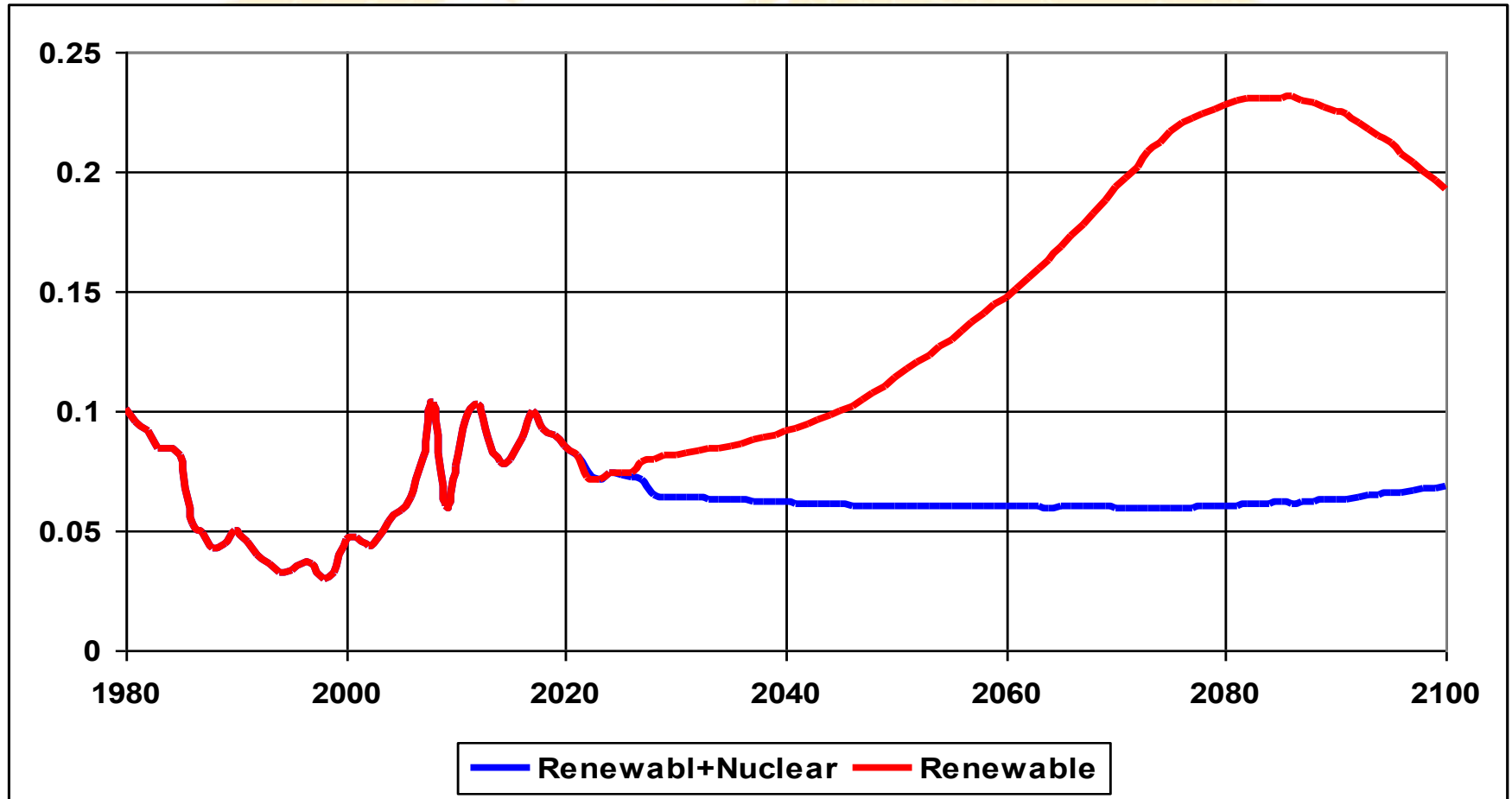
**Specific consumption of primary energy is at the rate about 4 toe/cap**

**Energy consumption: from 0 to 2010 year – 600bil.toe**

**from 2010 to 2100 year – 2000bil toe**



# Share of primary energy in GDP



**Thank you for attantion**