

Trading and International Trade of Coal.

Oral of Finance.

Introduction

- ▶ Coal is a fossil fuel of organic origin, used since the 19th century.
- ▶ It was an important pillar of the industrial revolution, required for steam engines.
- ▶ Today, it is useful for : electricity production, cement works, steel industry, heating system, chemistry, liquid fuel, gas...

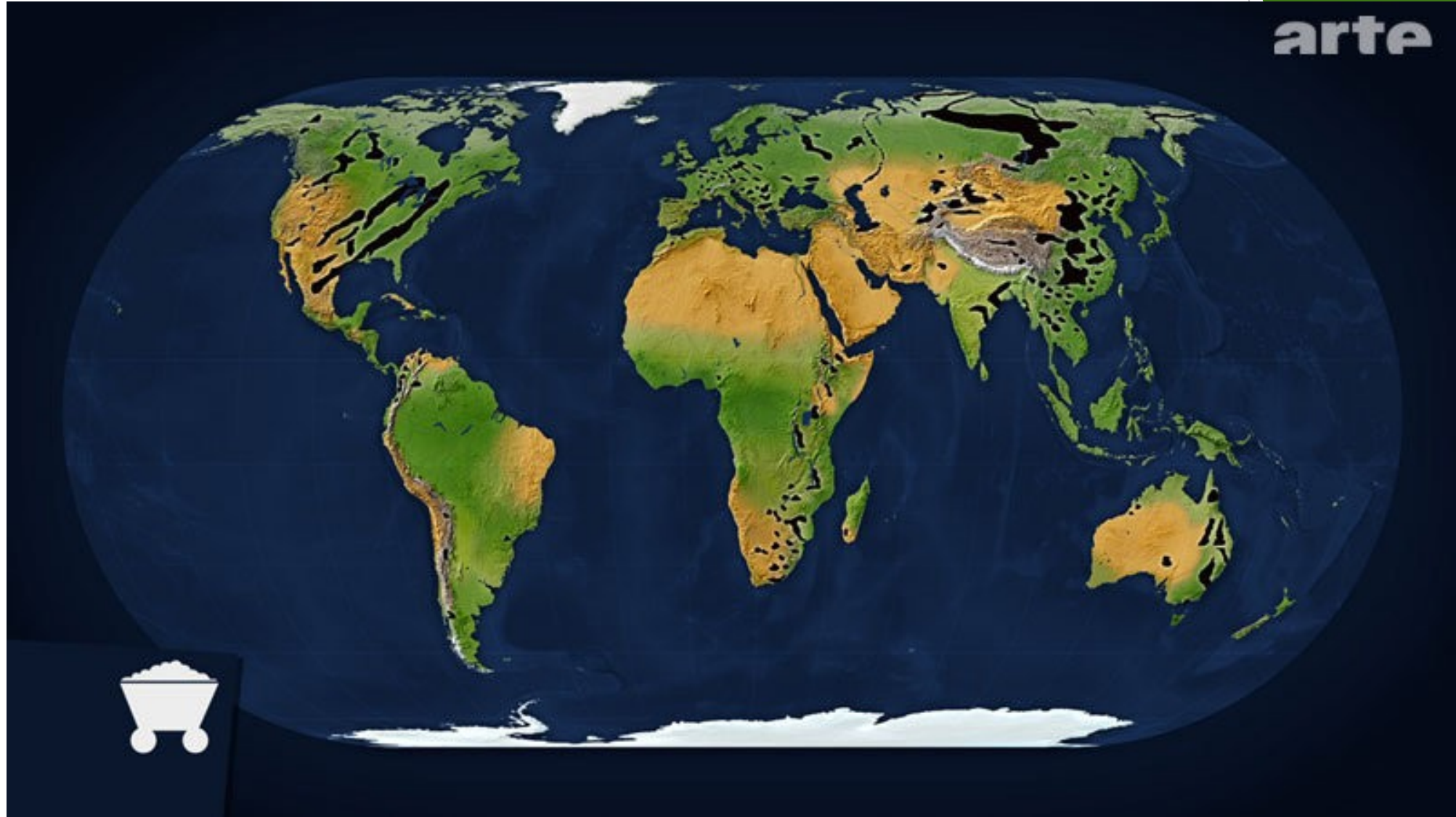
Question : Which future for the coal in the 21st century ?

A) Trends for a continuity with coal

1) Some key benefits :

- ▶ Plentiful reserves on earth : 826 GT (2008) = 120 years of production at the actual pace of mining. Comparatively : oil =40 years, gas = 65years.
- ▶ Spread coal deposits. Biggest deposits in USA : 237GT, Russia with 157 GT and China with 115GT.
- ▶ There is no monopoly on this market, prices are competitive.

Coal repartition in the world.

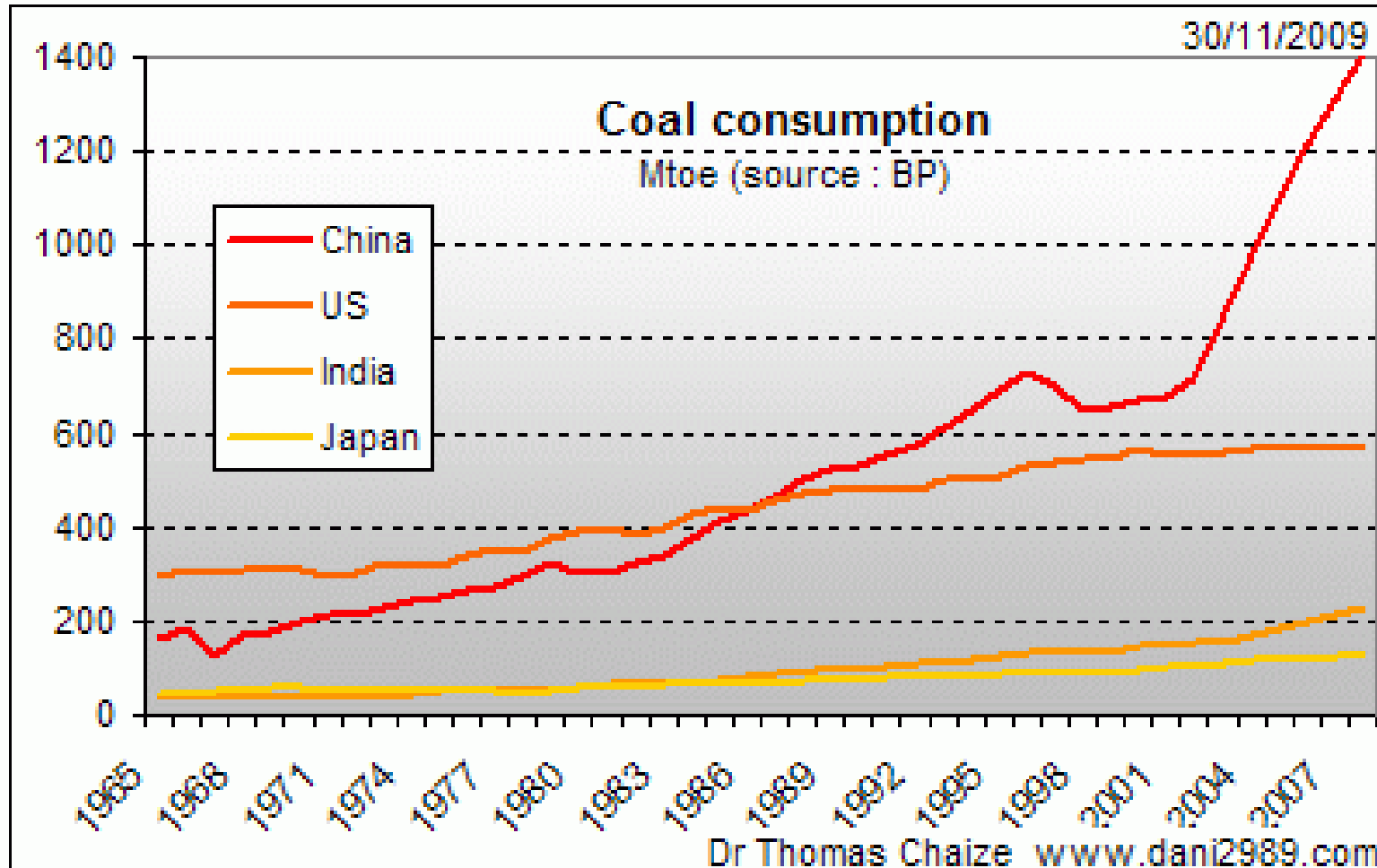


picture from « *le retour en puissance des réserves de charbon* », le dessous des cartes.
<http://ddc.arte.tv/cartes/138>

2) One of the most important energy early century :

- ▶ The second most used fossil fuel, after oil but before gas. 40% of the world electricity production is ensured by coal.
- ▶ Demand of developing countries is very strong. World demand : 1,9% of increase per year until 2030, reaching 4 441 Mtep according to IEA.
- ▶ Production and consumption have known an important increase.
- ▶ An organized market : two parts : Pacific zone and Atlantic zone.
- ▶ Only 16% of the production is exported but it's growing. 2000 : 608 Mt exchanged, 2007 : 905Mt.
- ▶ Japan is the first importer. Australia and Indonesia are the first exporters.

Coal consumption of China, Usa, India and Japan.



Picture from « le charbon, prix, consommation et utilisation », energy&mining.
<http://www.dani2989.com/matiere1/coal1109fr.htm>

B) Essential Challenges for the coal future.

1) Environmental and safety constraints :

- ▶ Environmental challenge : coal has big environmental impacts. Destruction of the environment during the extraction, rejects of polluting gas during the transformation and during the burning (carbon gas, sulfur gas, oxide nitrogen gas). Between 2000 and 2013 : 60% of greenhouse gas emissions are linked to the coal.
- ▶ Coal production is dangerous : explosion in mines, pulmonary disease (silicosis). Several thousands of deaths per year in China.

2) Demand and energy market are evolving

- ▶ Market based on China. But China has for objective the ecologic transition.
- ▶ Coal peak around 2030.
- ▶ Competition of gas.
- ▶ Lack of investments.

Conclusion

- ▶ Dangers for coal : Drop in world demand, environmental objectives, price of gas, competition with other energies, low investments.
- ▶ Future of coal depends on new technological developments, on progress in the ecological sector.
- ▶ Coal has to take up challenges to stay an important energy in the medium/long run.

Sources :

- ▶ **Sources :** « *Energie Fossile, Charbon* ». Connaissances des Energies, 2015. Referred to on 21st of october. <http://www.connaissancedesenergies.org/fiche-pedagogique/charbon>
- ▶ « *Charbon* ». Wikipedia, 2016. Referred to on 21st of october. <https://fr.wikipedia.org/wiki/Charbon>
- ▶ « *Le Charbon, Energie du 21^{ème} Siècle ?* ». Energies Nouvelles. Referred to on 22nd of october. <http://www.ifpenergiesnouvelles.fr/Espace-Decouverte/Les-grands-debats/Quel-avenir-pour-le-charbon/Le-charbon-energie-du-21e-siecle>
- ▶ « *Le Charbon* ». Energies Nouvelles. Referred to on 22nd of october. <http://www.ifpenergiesnouvelles.fr/Espace-Decouverte/Les-cles-pour-comprendre/Les-sources-d-energie/Le-charbon>
- ▶ « *La Consommation Mondiale de Charbon* ». Planétoscope, 2012. Referred to on 19th of october. <http://www.planetoscope.com/Source-d-energie/210-consommation-mondiale-de-charbon.html>
- ▶ « *La Production Mondiale de Charbon* ». Planétoscope, 2012. Referred to on 19th of october. <http://www.planetoscope.com/Source-d-energie/1467-production-mondiale-de-charbon.html>
- ▶ « *Charbon : la forte demande de la Chine redessine le marché mondial* ». ActuEnvironnement, 2011. Referred to on 25th of october. <http://www.actu-environnement.com/ae/news/marche-mondial-charbon-production-consommation-chine-14410.php4>

Thank you for your attention.