



Recent Progress

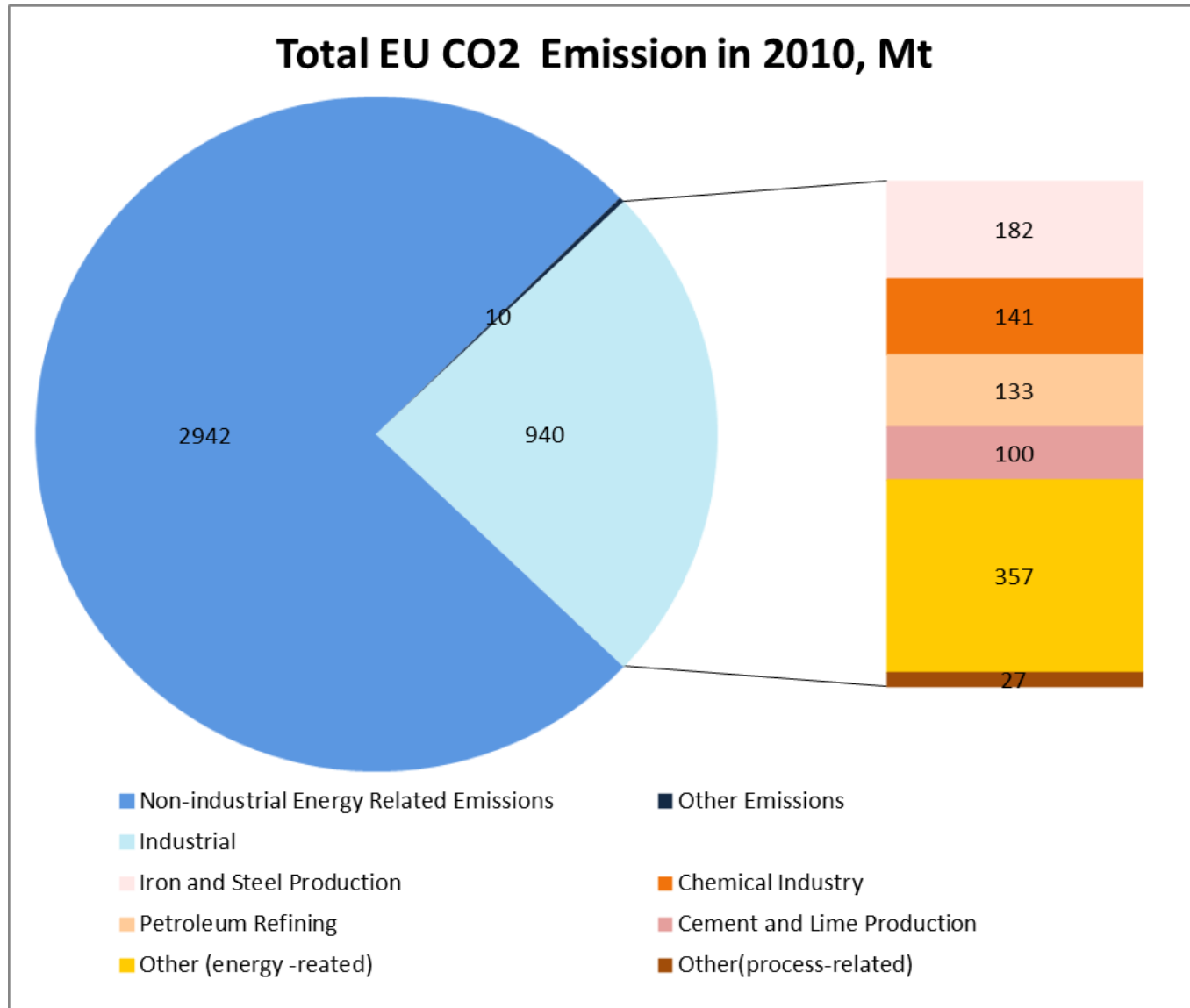
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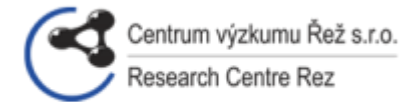
Outline

- Introduction
- Progress in the world
- Changes in the European Geopolitics
- Collaboration with U.S. Partners

Introduction – structure of EU CO₂ emissions:



Members of the NC2I:



Supporting projects:

European projects:

National projects:



SYNKOPE



HTRPL

Progress in the World: China

- China is continuing development of its HTR-PM plant (2 x 250 MW_{th}, 210 MW_{el}) based on German HTR-Modul design.
- Small prototype reactor, HTR-10, continues to operate in Beijing university as well.
- Recent HTR2014 conference in China gave opportunity to see these developments.



Geopolitics 1: Environmental regulations

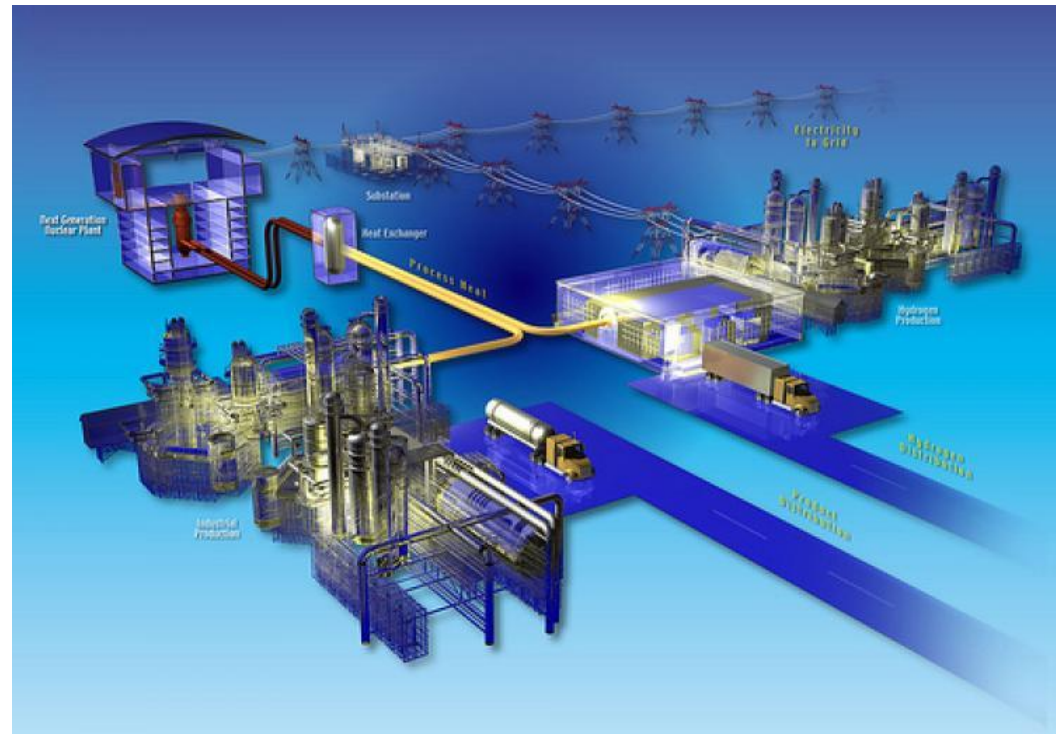
- The EU continues to tighten the environmental regulations
- This will affect the industry, which is facing increasing costs. Many societal challenges will come along.
- The industry can:
 - shut down
 - move outside EU (a.k.a. carbon leakage)
 - Adopt low-emission technologies, **if they are available at reasonable price.**

Geopolitics 2: Ukraine Crisis

- A wake-up call for our policy makers
- 11.09.2014 Gazprom reduced export to
 - Poland by 45% for several weeks
 - by 25% to Slovakia
 - by 15% to Austria
 - by 5% to Romania
- Replacement of gas for heat production becomes crucial for energy independence of Europe, especially for Central & Eastern countries.

Work in United States:

- R&D program *Next Generation Nuclear Plant* has been conducted since early 2000s.
- Total funding since then: ~\$600m
- Funding ~ \$100m/y in best years.
- Current funding: \$25-\$30m/y, mostly on material and fuel R&D.



NGNP Industry Alliance

- A large group of stakeholders (technology, end-users, research...) has formed NGNP Industry Alliance Ltd. (NGNP-IA)
- Similar to NC2I, but is bigger and more visible.

Aims:

- To conduct demonstration of HTGR providing steam for industry at modest (550-600°C) temperatures
- To have VHTR applications (hydrogen etc.) as the next step
- Due to shale gas boom in US, export of technology is considered.

GEMINI Initiative

- Several NC2I – NGNP workshops took place recently:
- A good opportunity for long discussion on achievements and challenges.
 - The overall situation on both sides is similar – we have technology, but not the prototype plant (and it is not even designed).
 - Cheap gas makes it unlikely to have the HTGR built in the US
 - NGNP-IA has much better visibility and impact in US, than NC2I in EU. Also budget is much higher (more than an order of magnitude).
 - NGNP possesses well developed fuel technology.

GEMINI initiative

- An MoU has been signed with NGNP IA in June 2014.
- It has been proposed to make the design work jointly, with as many common parts as possible (even if power levels are different across the Atlantic).



Thank you



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