

Standing Committee Knowledge and Technology

Task Force 2:

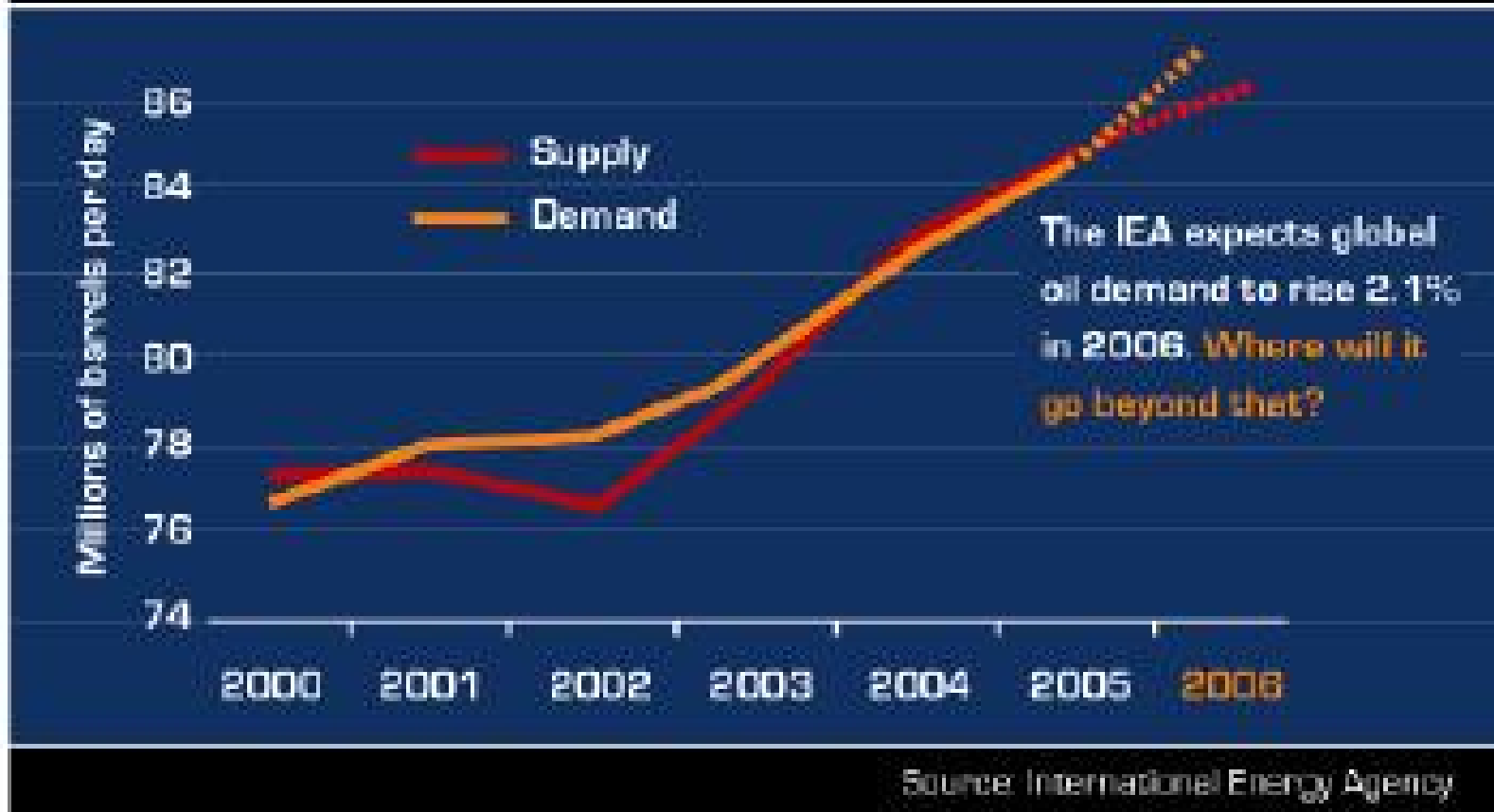
“Energy Efficiency of Buildings in Europe”

Chair: Asko Sarja,

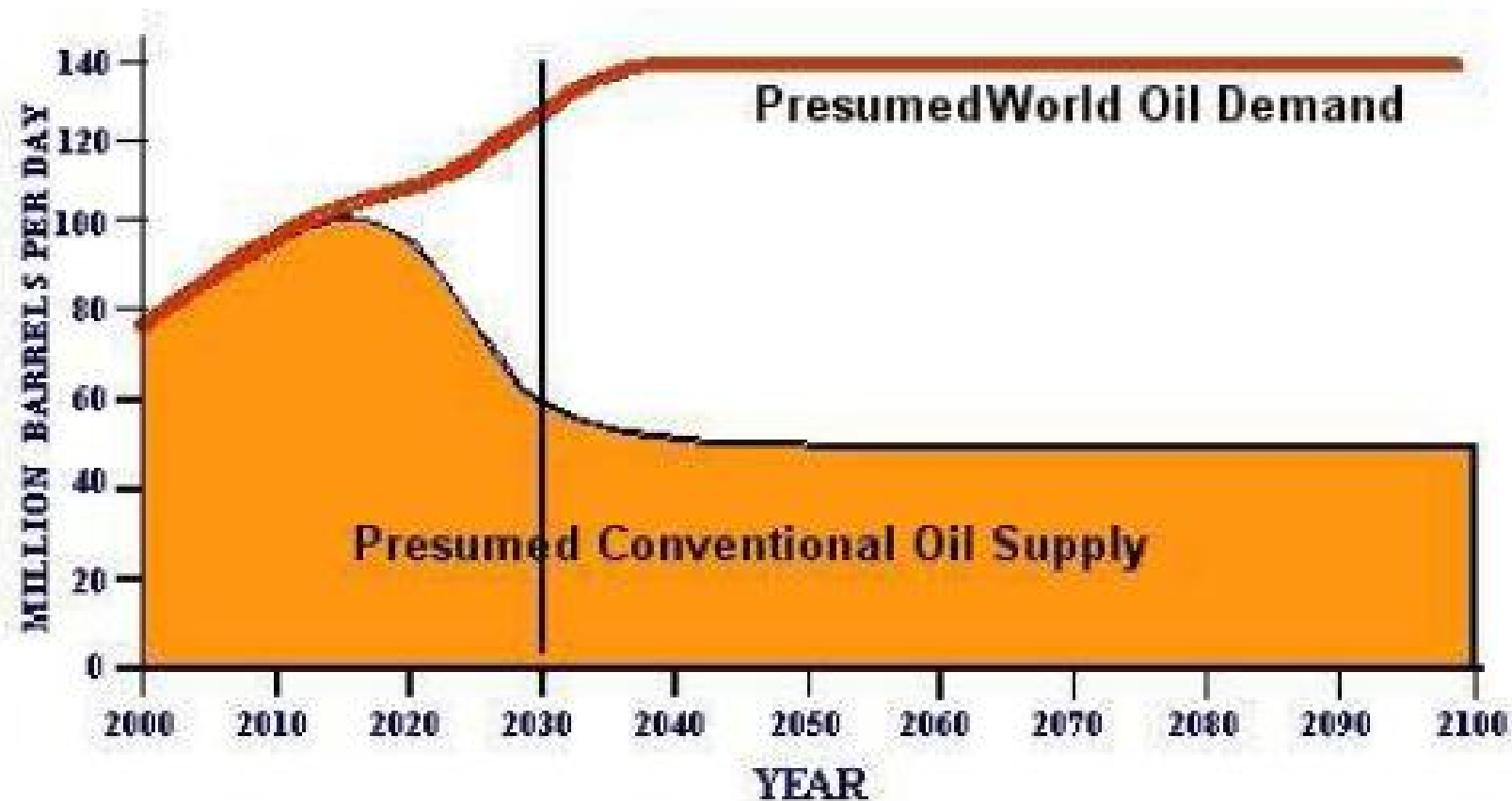
Co-Chair: Karlheinz Zachmann

Background: Oil Demand overscreeds the production

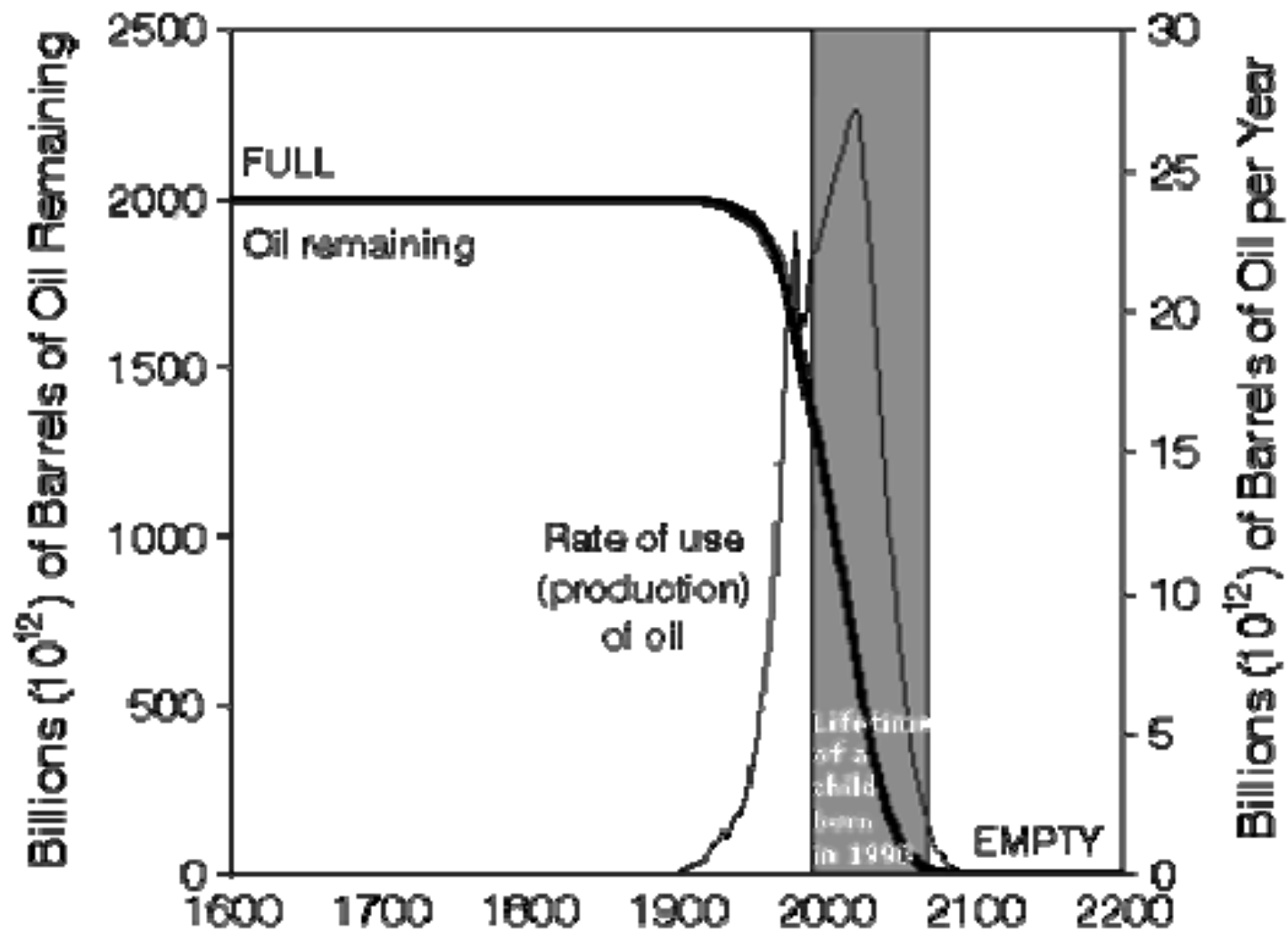
Global Oil Supply and Demand: A Bleak Outlook



Background: Oil Demand overscreeds the production

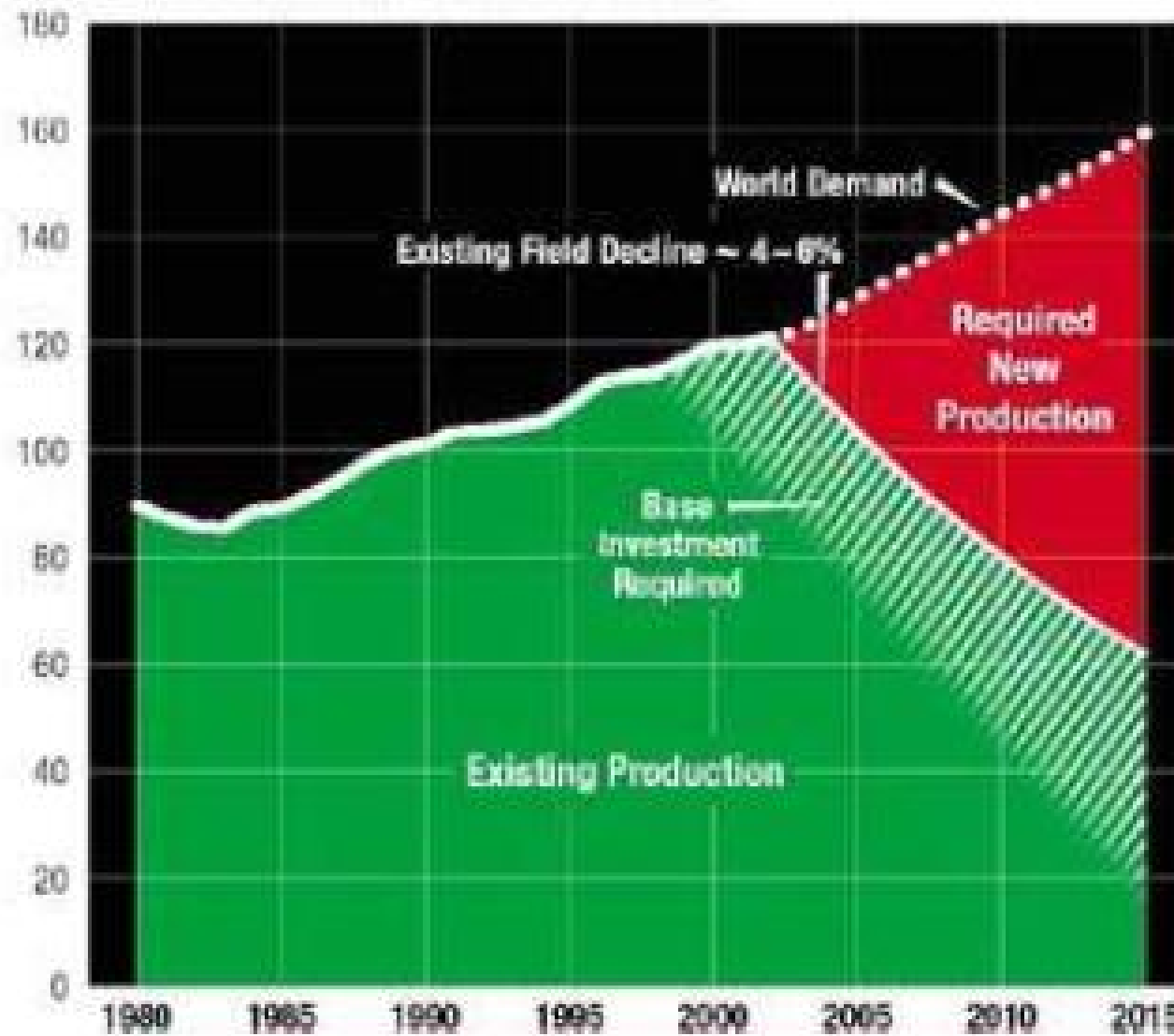


World's Oil Reserves



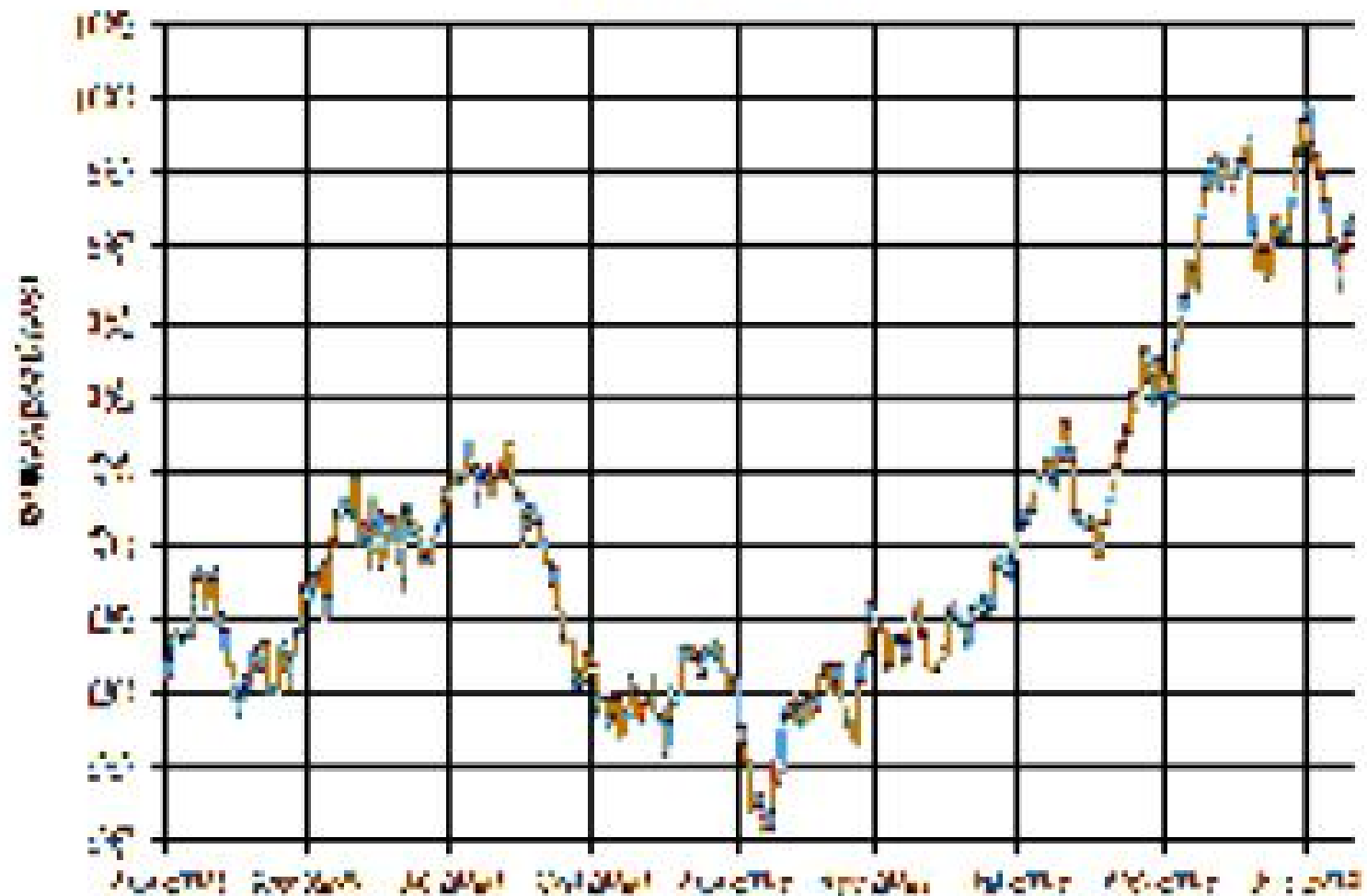
Supplying Oil and Gas Demand Will Require Major Investment

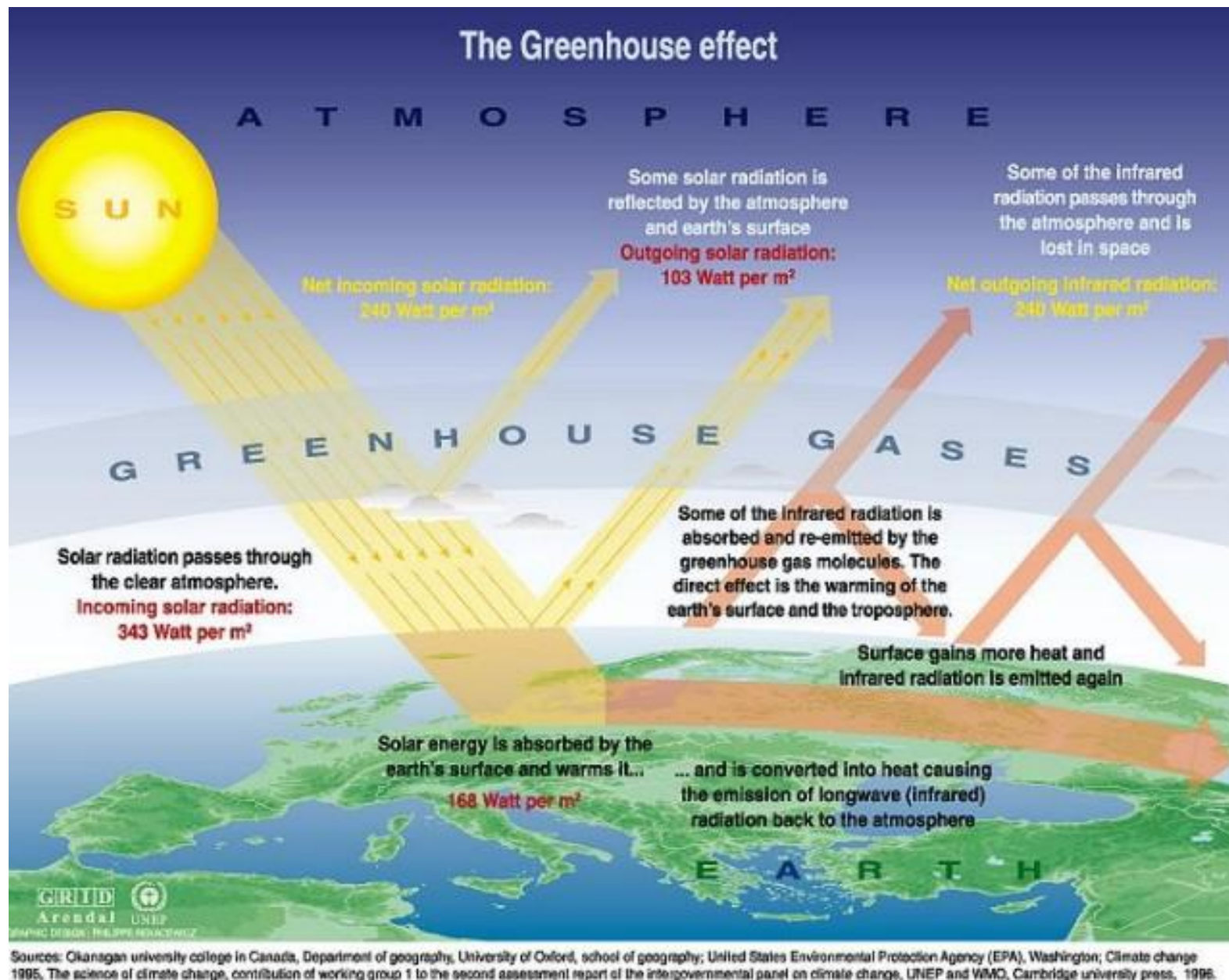
Millions of Barrels per Day of Oil Equivalent (MBOE)

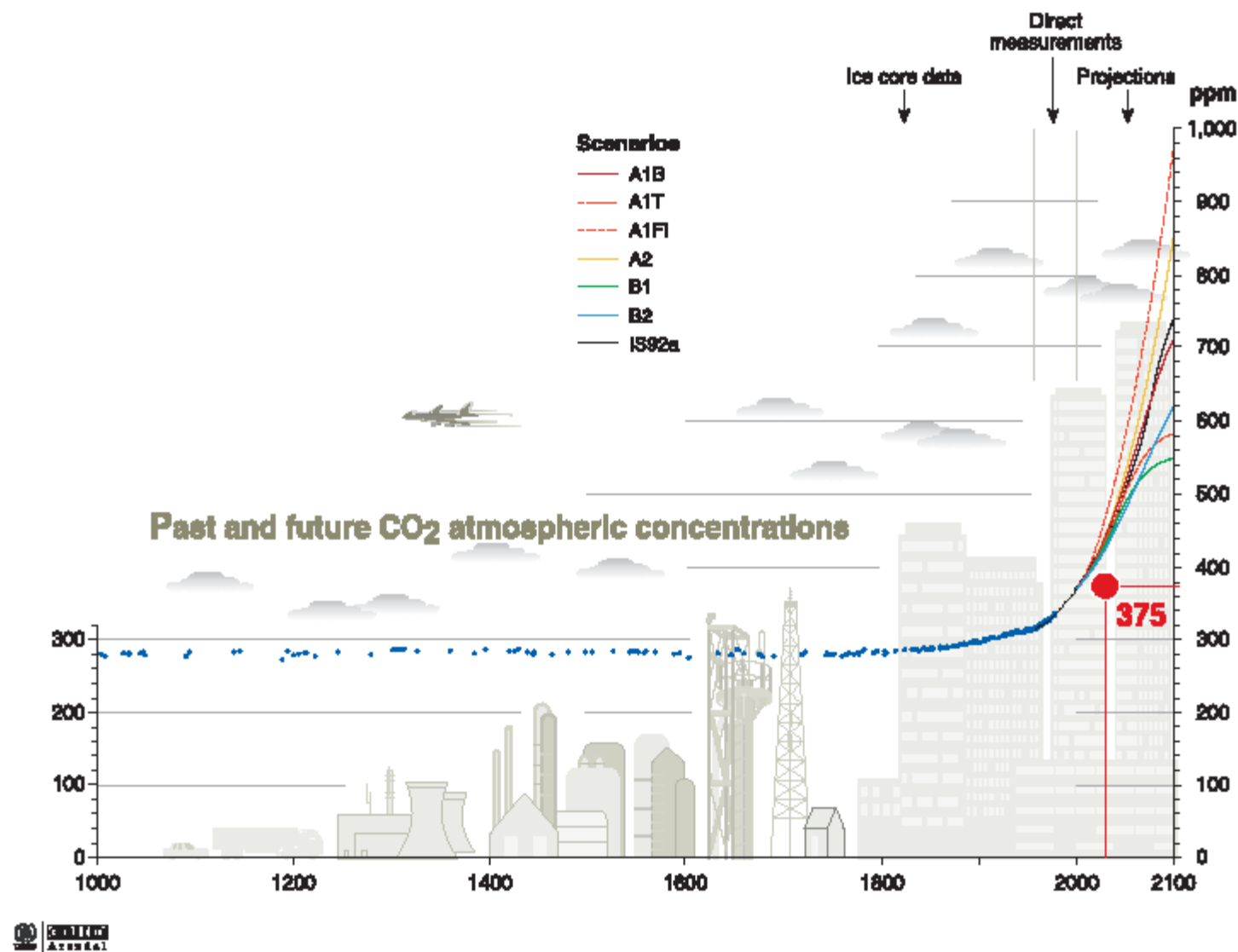


Oil Prices, 2005-2008

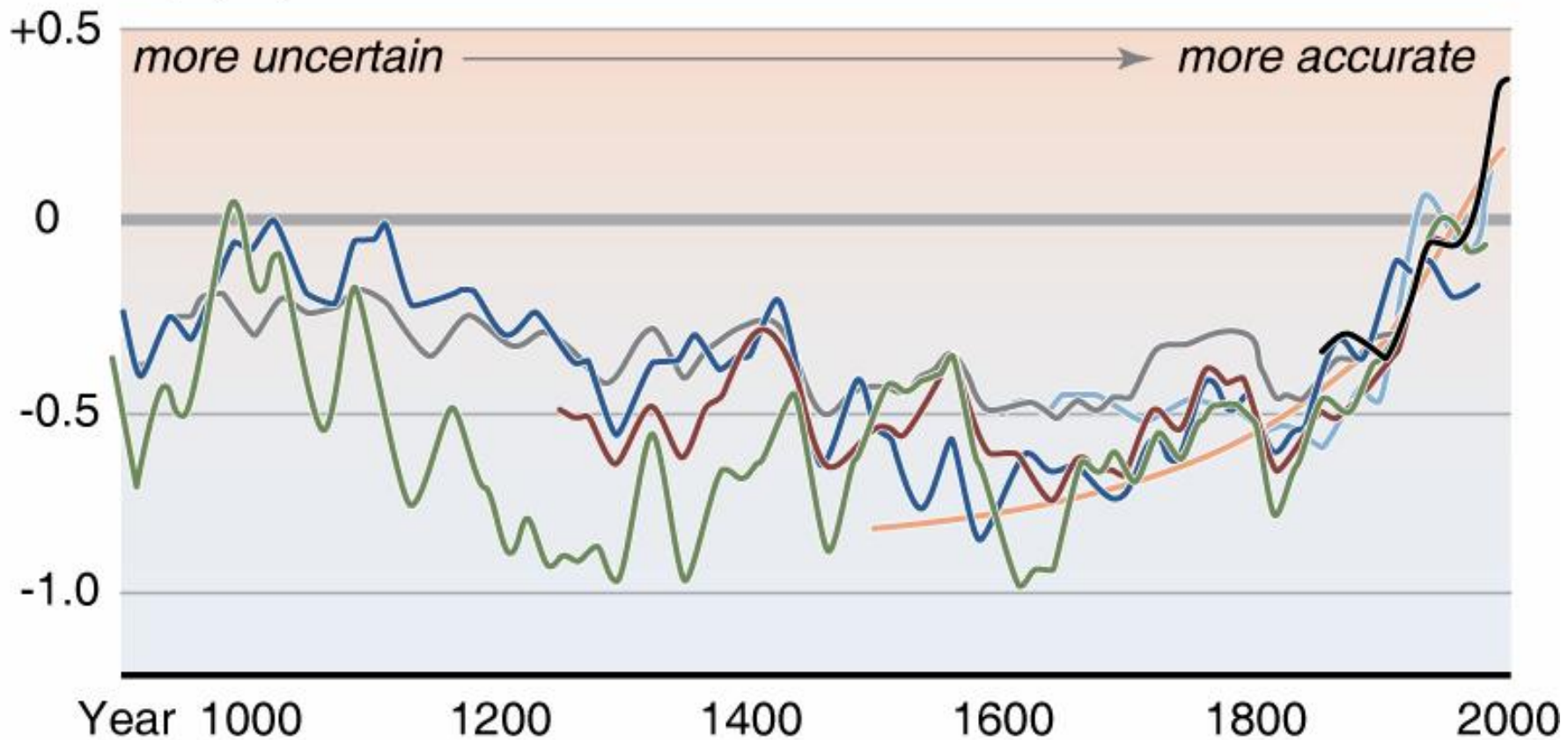
Source: EIA, 2008







Temperature anomaly (°C)



Tree rings

Glacier lengths

Multiple proxies
(combination)

Borehole temperatures

Instrument record

Global and European conclusions and decisions

- Agreements of Kyoto and Bali for global reduction of Greenhouse gases (CO₂)
- EU decision on the reduction of CO₂ production in EU:
 - 20 % until 2020
 - 80-95 % until 2050
- The EU Commission considers the biggest energy savings are to be made in the following sectors:
 - residential and commercial buildings (tertiary), with savings potentials estimated at 27% and 30% respectively,
 - the manufacturing industry, with the potential for a 25% reduction, and
 - transport, with the potential for a 26% reduction in energy consumption.

Conclusions for buildings in Europe

- Buildings in EU are consuming more than 40 % of the total energy use in EU
 - For heating and cooling alone 25 %
- A drastic reduction of energy consumption of both new and existing buildings is needed
 - in order to achieve the objectives of EU for CO₂ reduction and
 - In order to achieve optimal life cycle economy of buildings
- There exists a techno-economic potential and knowledge for this change
- Information and education of engineers are needed in order to get the knowledge into practical use

Challenges for Civil Engineers

- The main role of civil engineers is co-ordination of effective actions for energy efficiency:
 - Analysing of the current state of energy efficiency of buildings building networks with central partners of construction: Investors, owners, users, architects, structural engineers and building service engineers, contractors and managers of building stock
 - Analysing the economic and technical potential for drastic improvement of energy efficiency of buildings
 - co-ordinating R&D processes towards energy efficient building and renovation concepts
 - activating European and global co-operation in these actions
 - Creating actions in the research and practice for introduction of the low energy building concepts into new construction and renovation concepts
 - Including application of earth energy and solar energy for heating and cooling of existing buildings

Proposed actions of ECCE

- **Agree on ECCE co-operation in the ECCE meetings in Riga**
- **Inform the ECCE member Associations of Civil Engineers on the targets of EU for the energy saving of buildings**
- **Collect information on**
 - **current low energy building concepts from all ECCE member Associations of Civil Engineers**
 - **ongoing R&D projects and experimental buildings**
- **Prepare a State of the Art report on energy efficient building and renovation concepts and their practical realisations and use in EU**
- **Prepare a Vision Report on the low energy buildings in the years 2020 and 2050**
- **Inform on the results mentioned above to ECCE member Associations of Civil Engineers directly and through Internet Websites**
- **Distribute information**
 - **to the research, standardisation and administrative organisations and**
 - **to all partners of building (investors, owners, users, architects, structural engineers, building service engineers, managers of buildings)**
- **Organise an ECCE International Symposium on low energy building concepts and energy efficient renovation concepts:**
 - **The Symposium: EUROINFRA 2009, Helsinki, 15-16. September, 2009**

International ECCE Symposium :
**"EUROINFRA 2009: Current State and
Challenges for Sustainable Development of the
European Infrastructure"**

- **Two parallel Symposia:**
 - **Low Energy Building Concepts**
 - ***State and Condition Management of Infrastructure***

ECCE International Symposium: EUROINFRA 2009

- ***Local Organizer:***
 - **RIL** Association of Finnish Civil Engineers
- ***International Organiser***
 - **ECCE** **European Council of Civil Engineers**
- ***Members States of ECCE:***
 - Belgium
 - Croatia
 - Czech
 - Cyprus
 - Estonia
 - Denmark
 - Finland
 - France
 - Germany
 - Greece
 - Hungary
 - Ireland
 - Italy
 - Latvia
 - Lithuania
 - Portugal
 - Rumania
 - Slovakia
 - Spain
 - Turkey
 - United Kingdom

- **Programming Committee**
 - Local organisers of RIL
- **Local Technical Advisors**
 - Local Finnish experts
- **International Technical Advisors**
 - Active members of ECCE
 - Please register yourself into this group!

International ECCE Symposium :
"EUROINFRA 2009: Current State and Challenges for
Sustainable Development of the European
Infrastructure"

- The objective of this symposium is to collect people from practice and research to report and discuss on central challenges of sustainable development of the infrastructure (buildings and civil infrastructures) of our societies
- Focus on:
 - Low Energy Buildings and
 - State and Condition Management of Civil Infrastructures

Time Table

• Submission of abstract	30st November 2008
• Notification of acceptance of abstract	15th February 2009
• Submission of first draft of full paper	31th March 2006
• Refereeing decision	15th May 2009
• Submission of final full paper	30th June 2009
• Symposium	15th - 16th September 2009

Draft Program

<i>SUNDAY 13th September</i>	<i>Monday 14th September</i>	<i>Tuesday, 15th September</i>		<i>Wednesday, 16th September</i>	
ECCE Board Meeting	ECCE Annual Meetings	Opening Plenary Session, Keynotes		Plenary Session Keynotes	
		Condition of Infra-structure	Energy efficient buildings	Condition of Infra-structure	Energy efficient buildings
		LUNCH		LUNCH	
		Condition of Infra-structure	Energy efficient buildings	Condition of Infra-structure	Energy efficient buildings
		Technical Visits		Closing Plenary Session	
Dinner	Reception	Symposium Dinner			

**ECCE members in Riga and after this are kindly
asked support for the
Symposium “Euroinfra 2009”**

- To agree the proposal
 - With necessary changes
- To make proposals for members of the International Advisory Committee
- To make proposals for Keynote Lecturers
- To activate participation of all ECCE member organisations into the invitation of reporters and participants and
- To distribute information on the Symposium in each country through member organisations