



25th Annual North American Conference of the USAEE/IAEE

Fueling the Future:

Prices, Productivity, Policies, and Prophecies

Energy Efficiency and Renewable Energy Problems in the New EU Countries

K. Mikelsons

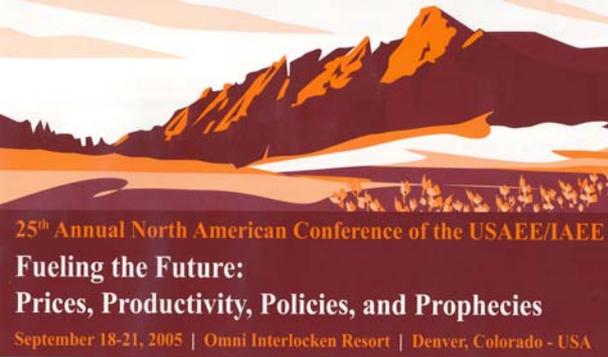
Latvian State Power Company "Latvenergo"

Dr. V. Kreslins, Dr. K. Brinkis

Latvian State Power Company "Latvenergo"

Prof., Dr. V. Zebergs, Prof., Dr. N. Zeltins

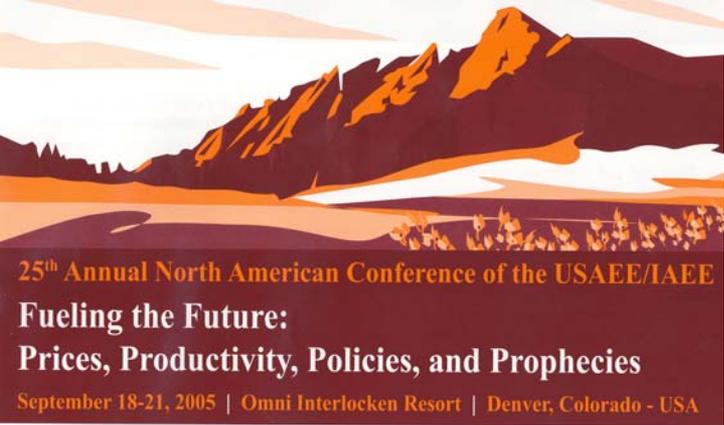
Institute of Physical Energetics of Latvian Academy of Science



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EUROPE





GENERAL DATA -LATVIA

General Energy Data	1990	2000	2010	2020	2030
Population [in million]	2.66	2.37	2.36	2.38	2.45
GDP 2000=100%		100	163	265	432
TPES Mtoe]	8.65	3.74	4.38	5.02	5.35
TPES/c [toe]	3.25	1.58	1.86	2.11	2.18
Electricity Supply [TWh]*	9.04	4.93	6.05	7.39	8.99
Electricity/c [MWh]	3.39	2.08	2.56	3.11	3.67

* end-use (netto)

European Energy Priorities

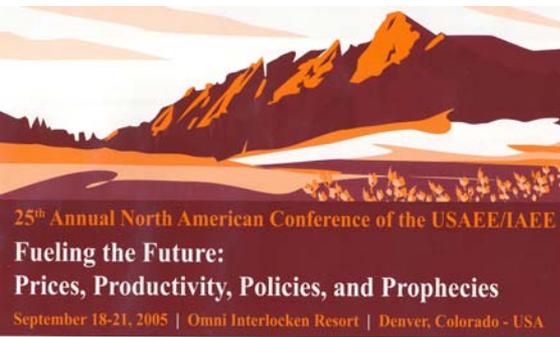
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An outline of the European Commission's plans for 2005



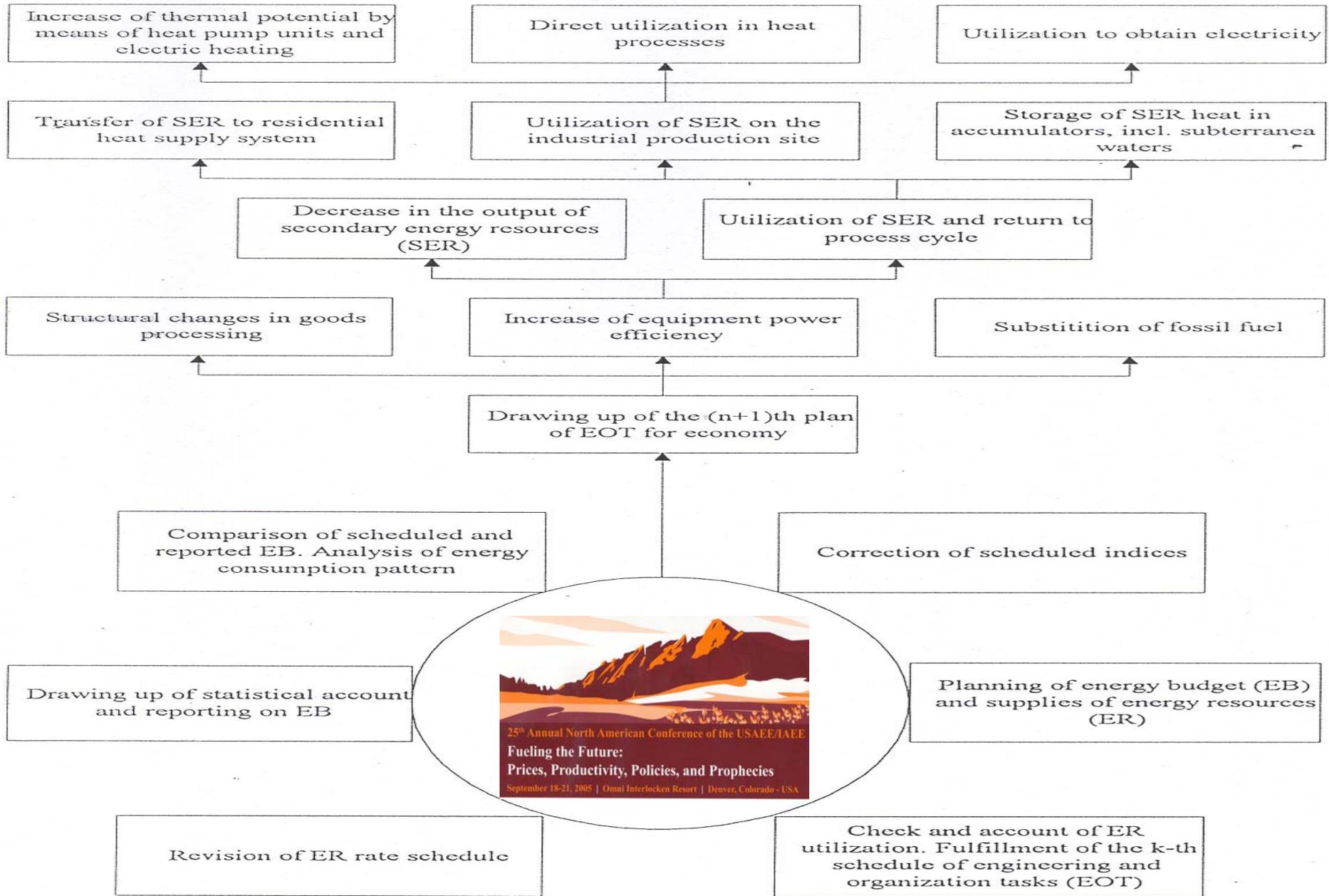
The ten-year strategy for economic, social and environmental renewal, known as the **Lisbon Strategy, is the priority of the new European Commission's mandate.**

The contribution that an effective energy policy can make to Europe's overall welfare cannot be underestimated.

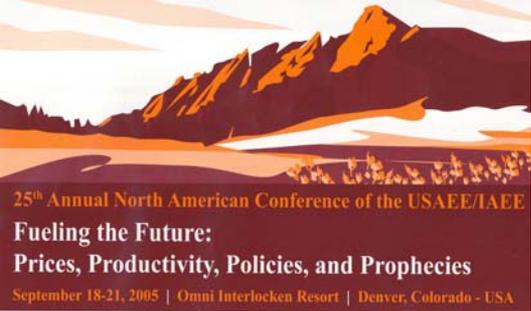


In order to address these changes, *Commissioner Piebalgs* has identified six key priorities on which the EU Commission's policy on energy will be focussed during the next five years and notably:

- 1. Increasing energy efficiency**
- 2. Achieving a properly functioning internal market for gas and electricity for the benefit of all our citizens**
- 3. Promoting renewable energy**
- 4. Strengthening nuclear safety and security**
- 5. Security of Europe's energy supplies and further developing external energy policy relations**
- 6. Improving the links between energy policies and environmental and research policies**



Model of the managing implementation process of the energy efficiency and renewable energy



Measures

Importance

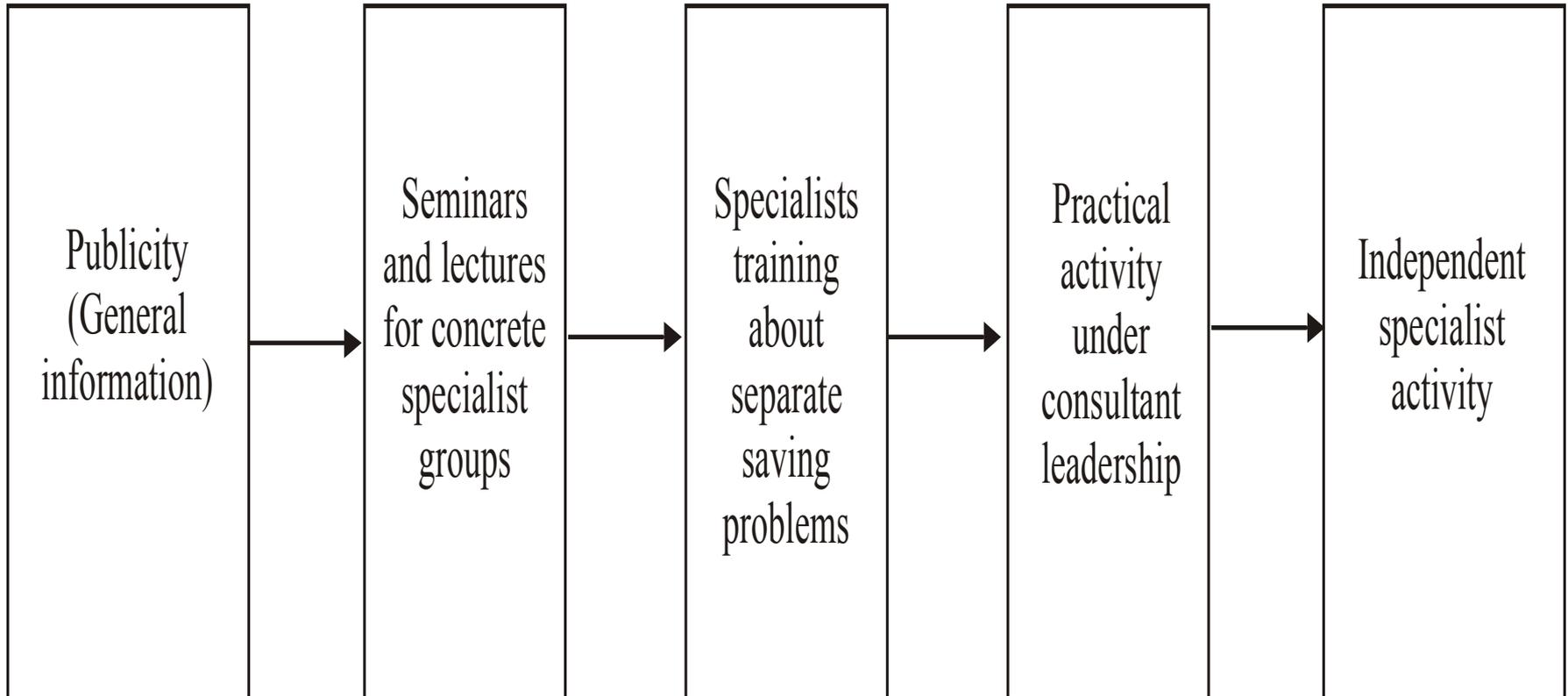
1	Education (general and professional)	XXX
2	Practice programmes help to get success in energy efficiency	XX
3	Comparative inform programmes develop of exchange of experiences	XX
4	Consumption reporting allow evidence of improvement of energy efficiency	X

XXX - highest priority

Priorities of some information – oriented measures



Developing of professional education of energy saving





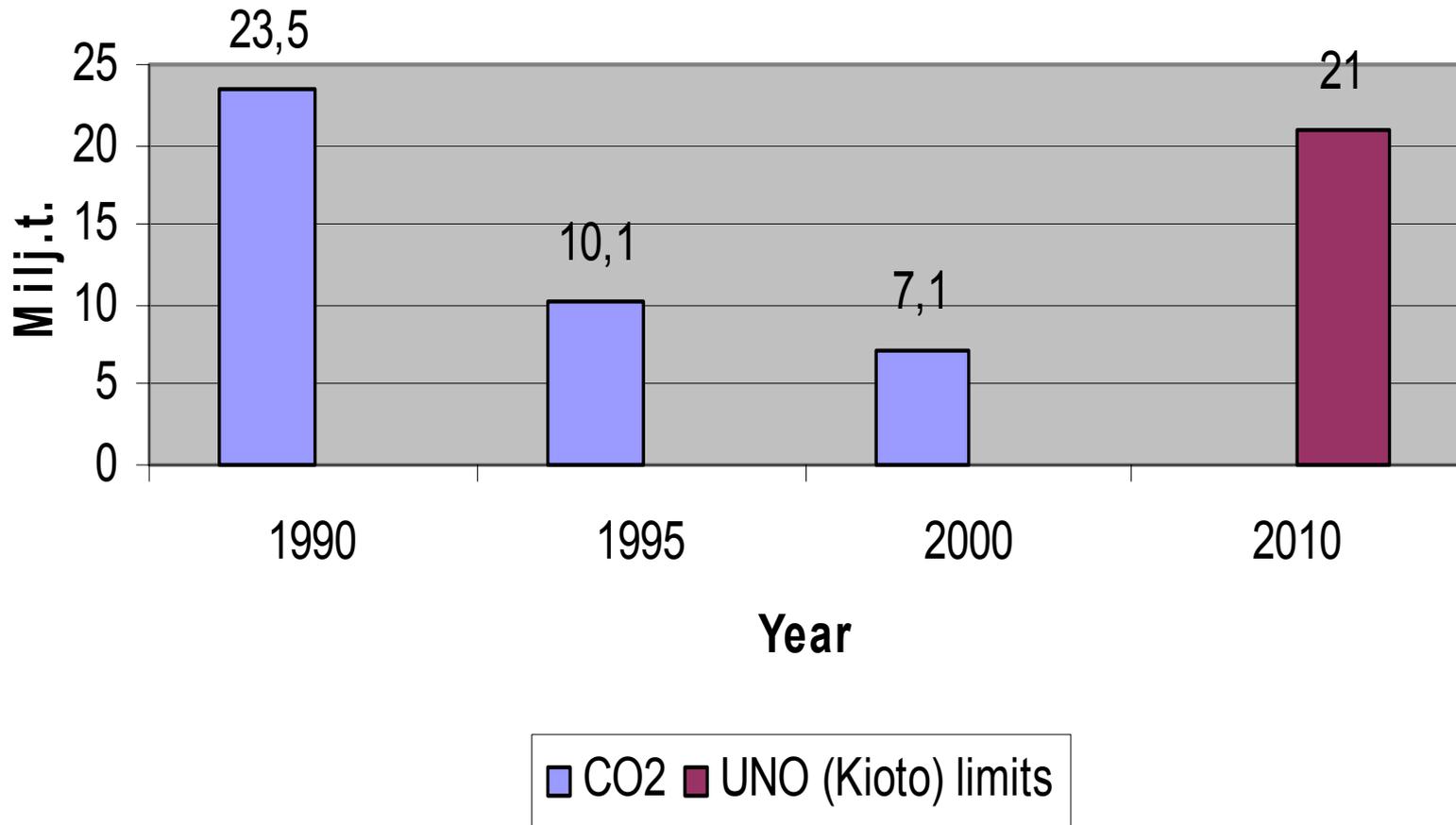
Emissions dynamics in the energetics sector

Emission	Unit	1990	1995	2000
CO₂	Milj. t	22.9	10.0	6.9
CH₄	Th.t	63.7	29.1	25.1
N₂O	Th.t	1.1	0.3	0.3
SO₂	Th.t	118	59	18
NO_x	Th.t	102	42	37
CO	Th.t	499	436	251



CO₂ emission dynamics

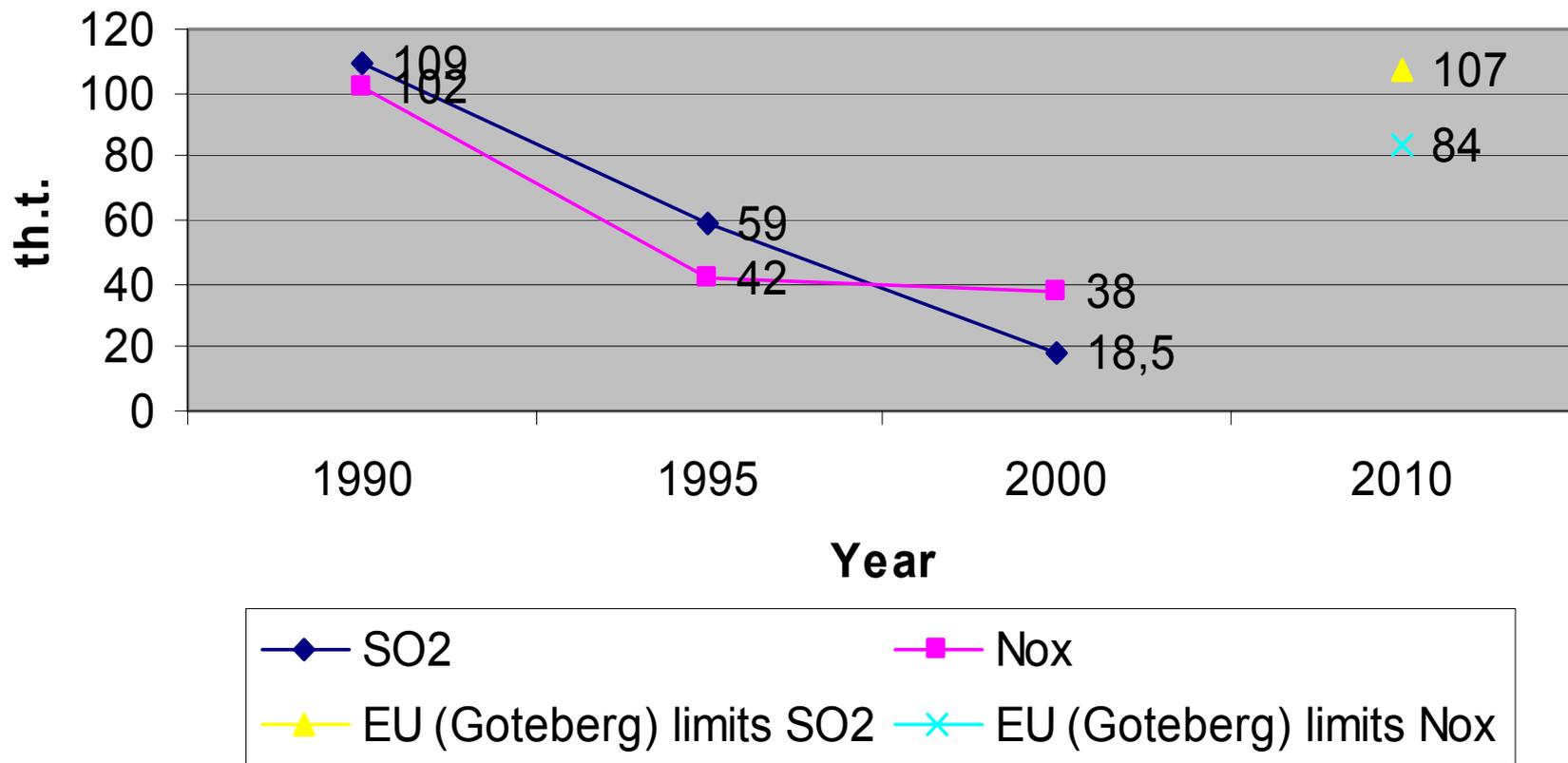
CO₂ Emissions Dynamics

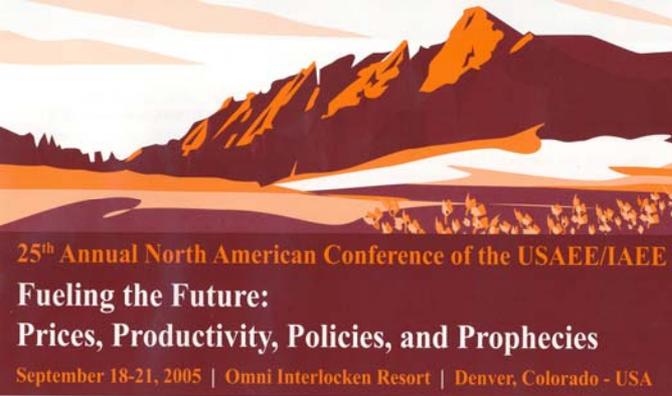




Emission dynamic prognostic

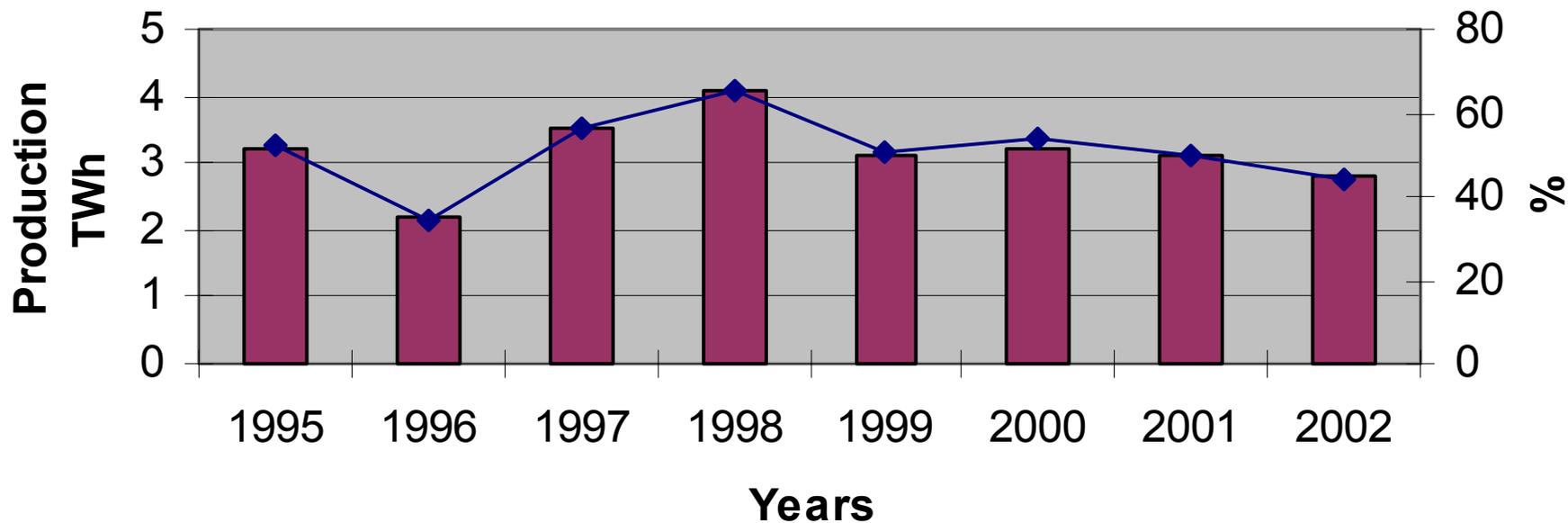
Emissions Dynamics





Fluctuation of the electricity production by the Latvian HPP

The Electric energy produced by the Latvian HPP



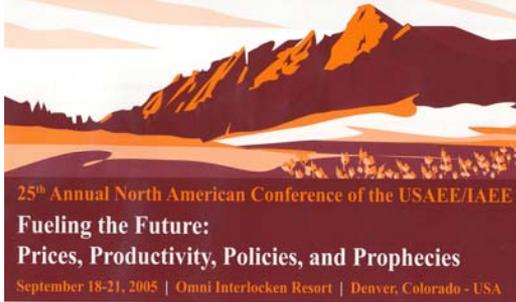
■ Production TWh ◆ %



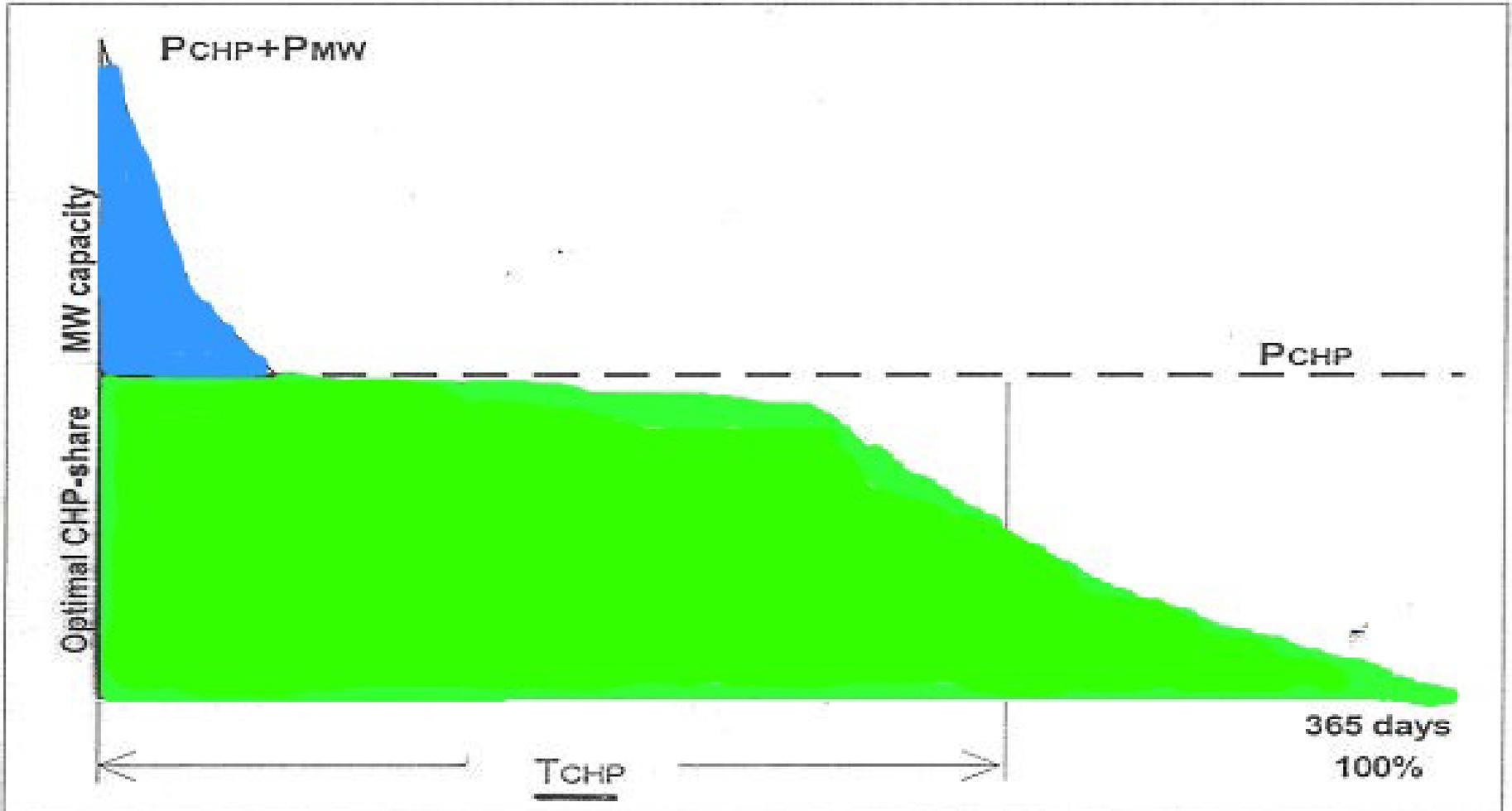
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The natural gas network of Baltic States and the Latvian underground gas storage potential



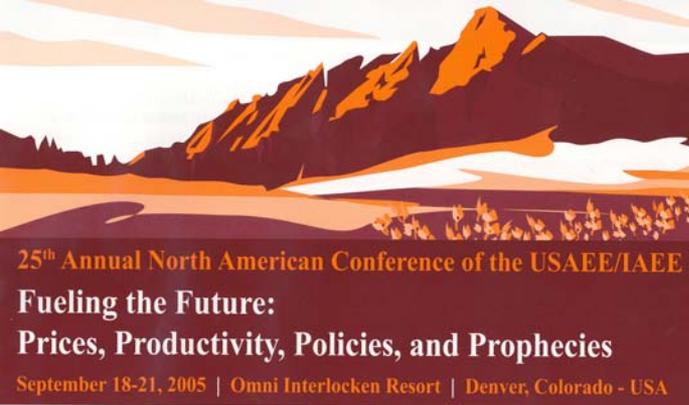


Heat demand duration curve

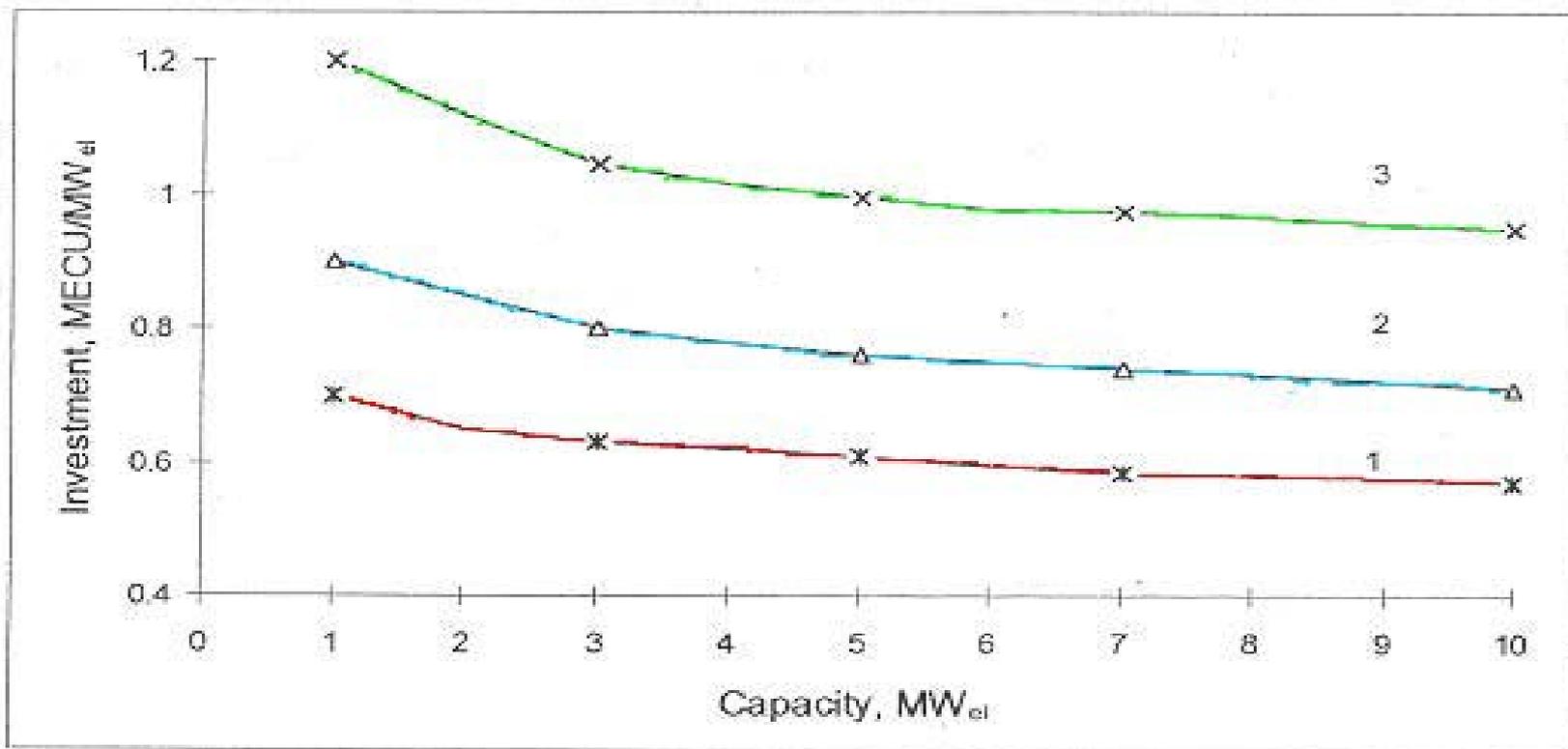


T_{CHP} – CHP maximal capacity utilization factor

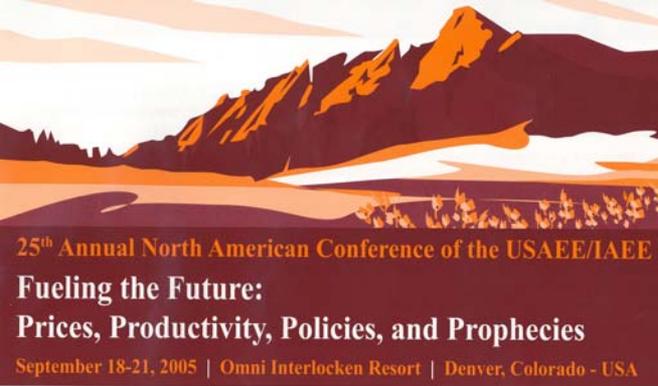
$$\mathbf{T_{CHP} = W_{CHP} / P_{CHP}, \%}$$



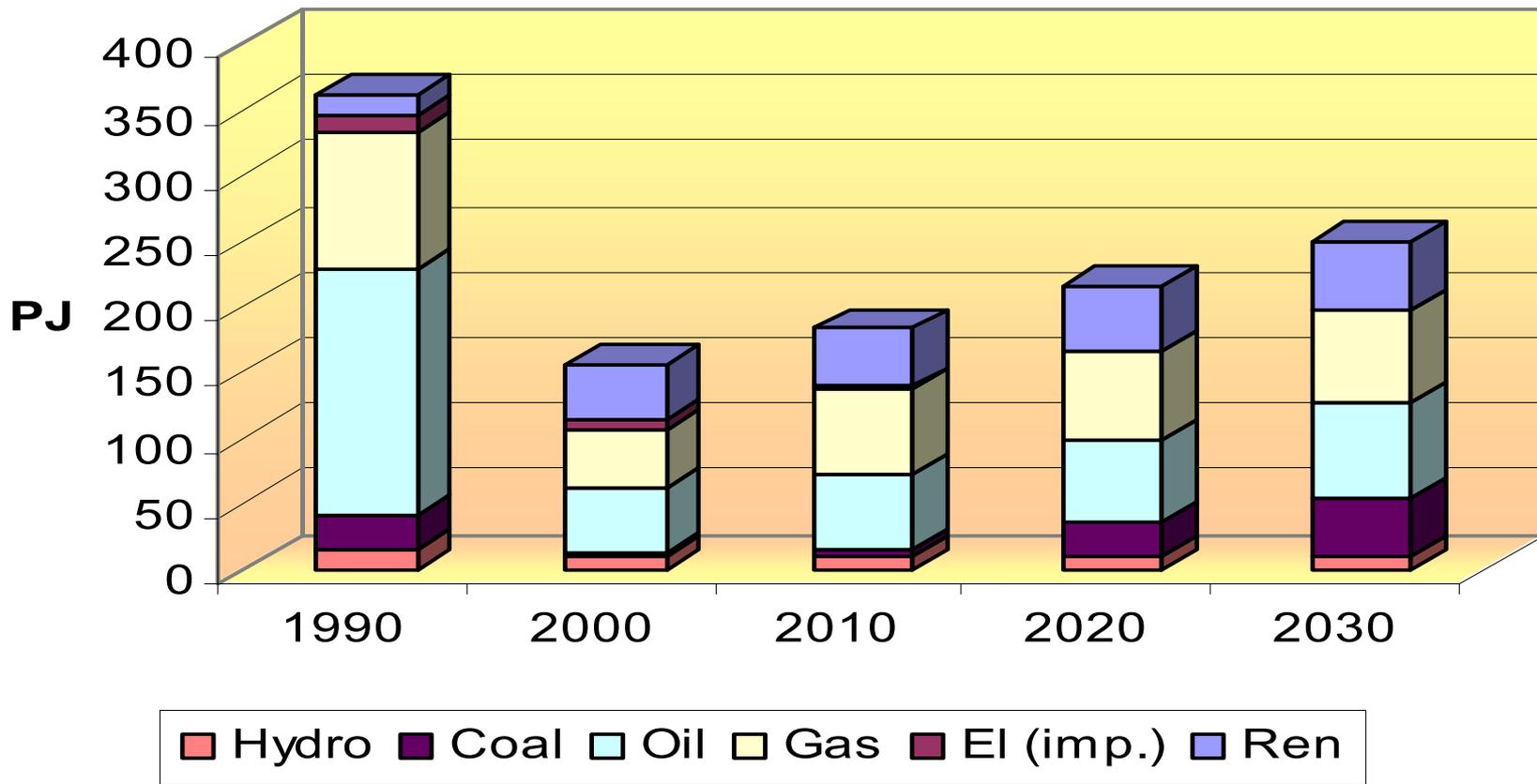
Investment in small capacity CHP for different cease

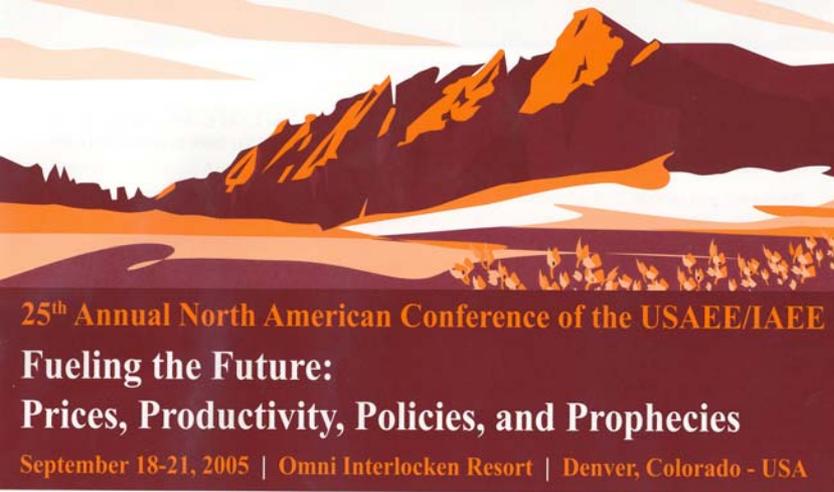


- 1 - Rebuilding DH plant to CHP, only technology;
- 2 - Rebuilding DH plant to CHP technology and partly building;
- 3 - New CHP.

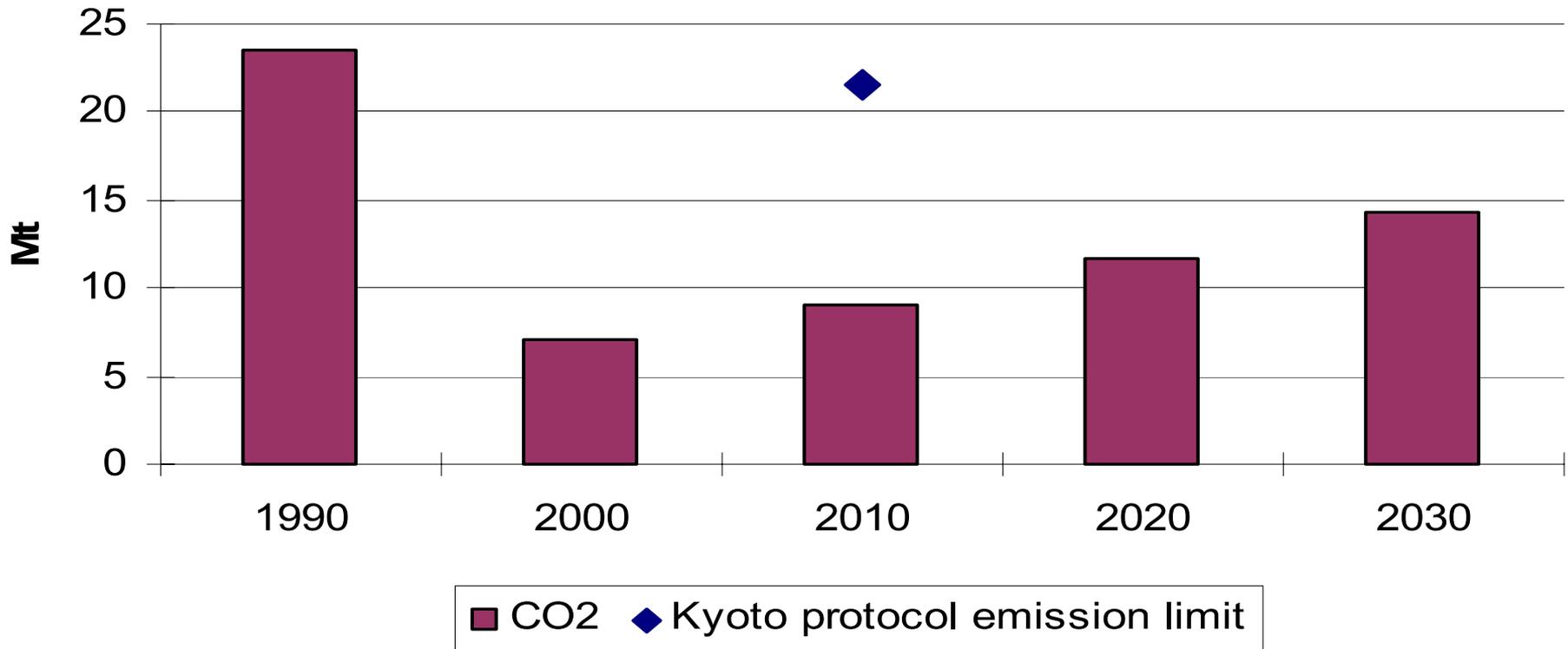


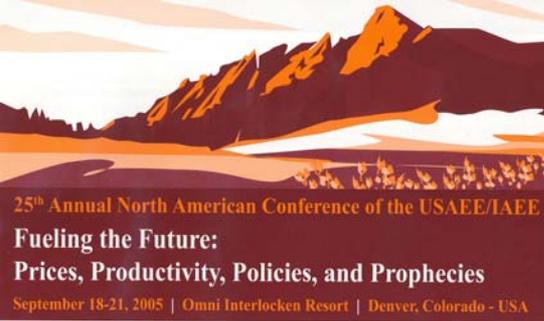
Trend of developing of Latvian primary energy balance and its structure



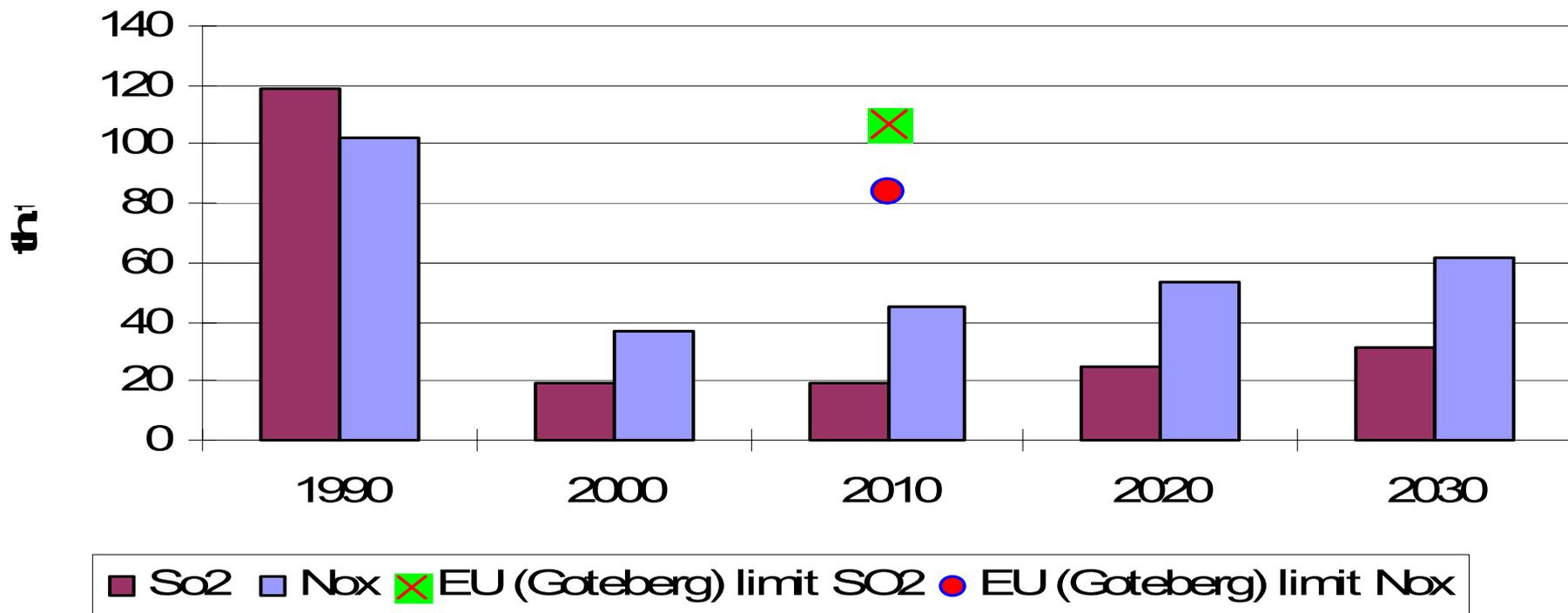


CO₂ emission from energy consumption in Latvia





SO₂ and NO_x emission from energy consumption in Latvia



**Thank you
for
attention!!!**

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