



TITLE



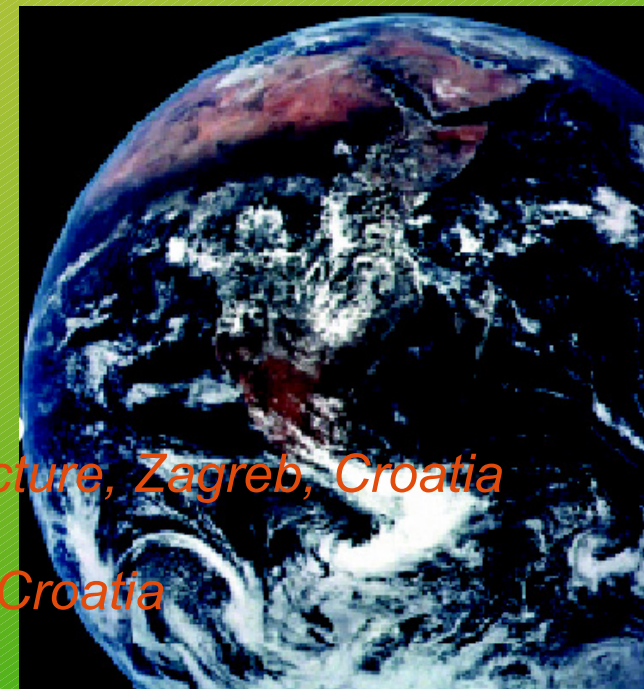
KYOTO PROTOCOL OBJECTIVES IN CROATIA ENERGY PLANNING: NUCLEAR SCENARIO

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BACKGROUND



Article 3.1 of the Kyoto Protocol to the UNFCCC

“The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012.”



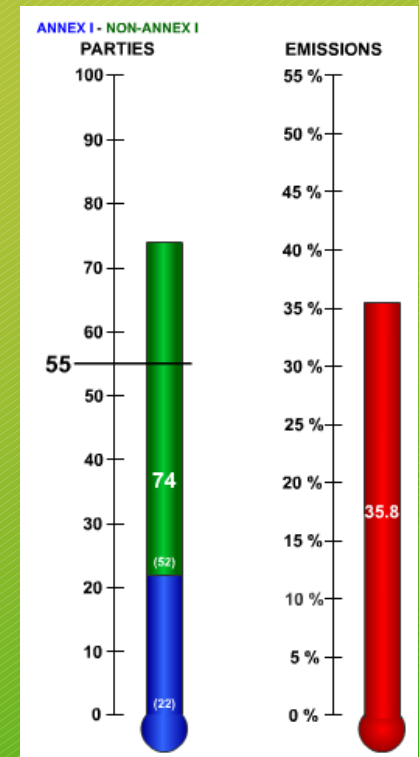
BACKGROUND



United Nations Framework Convention on Climate Change - 186 countries

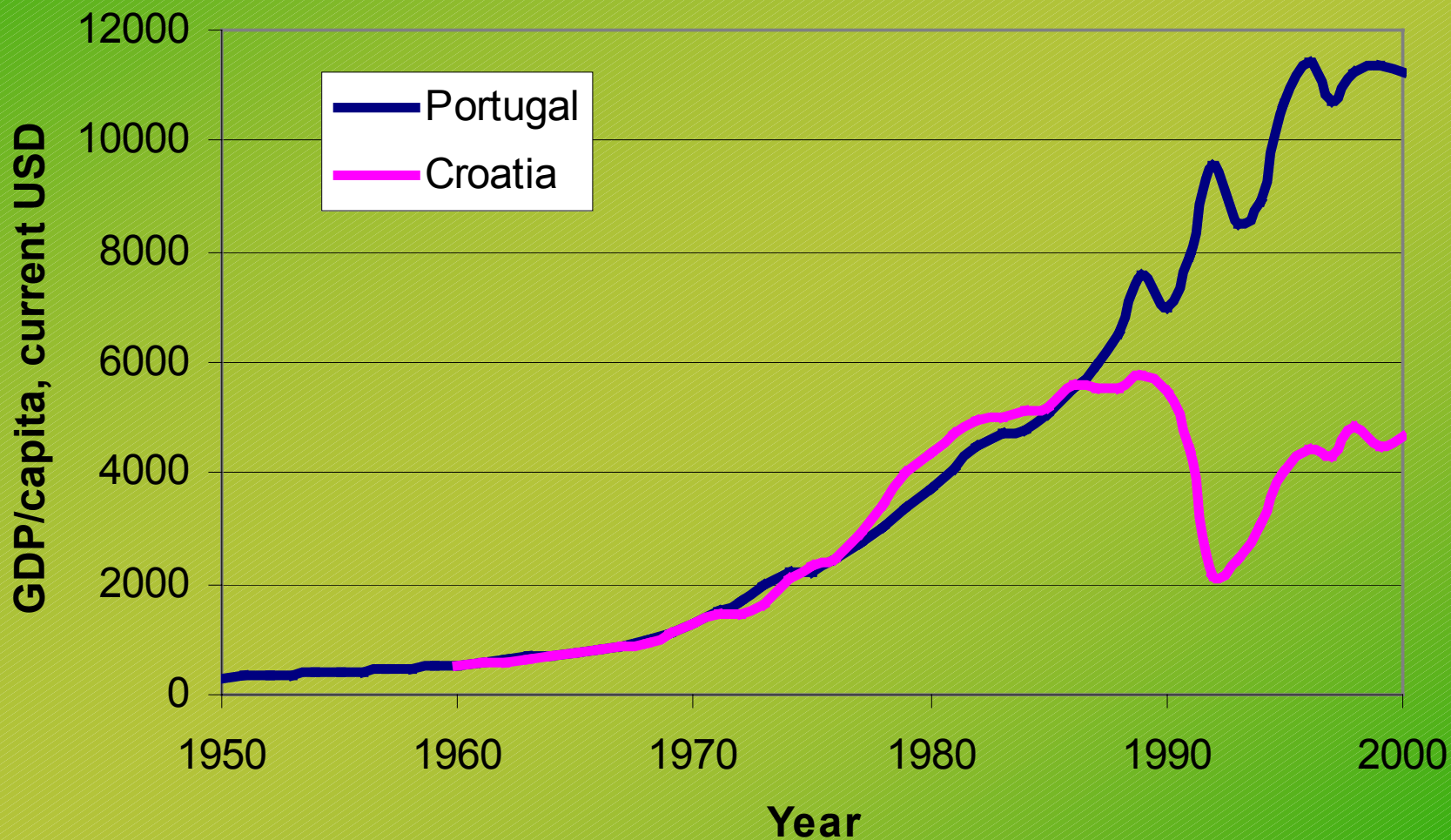
Kyoto Protocol, 1997:

- Reduction in GHG emissions in 38 countries
- 13 Economies in Transition
- **Croatia – 5% reduction of GHG from 1990**
- **Portugal – 27% increase of GHG from 1990**
- Entering into force: > 55 Parties to the Convention, > 55% of the 1990 Annex I emissions
- Status: 74 Parties + 36% emissions





BACKGROUND





SPECIAL CIRCUMSTANCES OF CROATIA UNDER ARTICLE 4, PARAGRAPH 6, OF THE CONVENTION



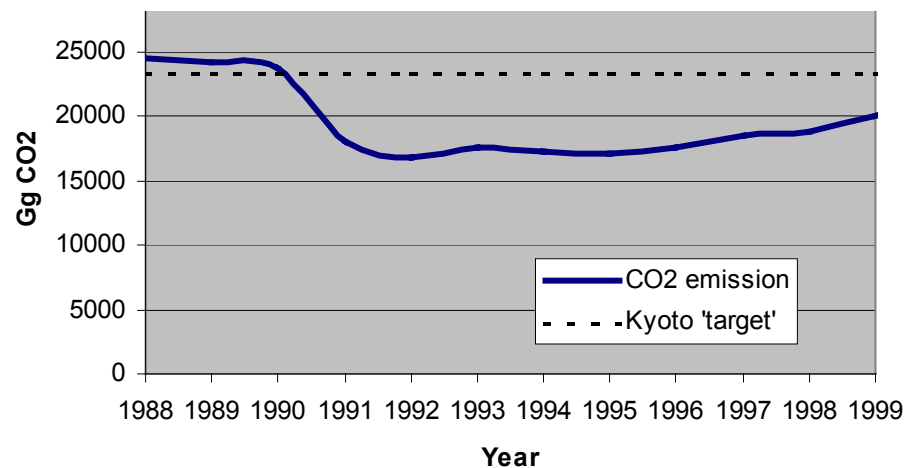
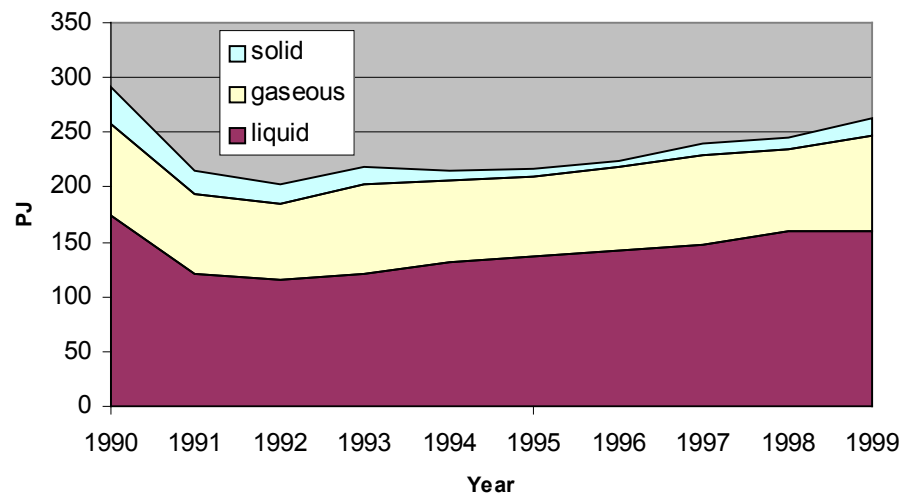
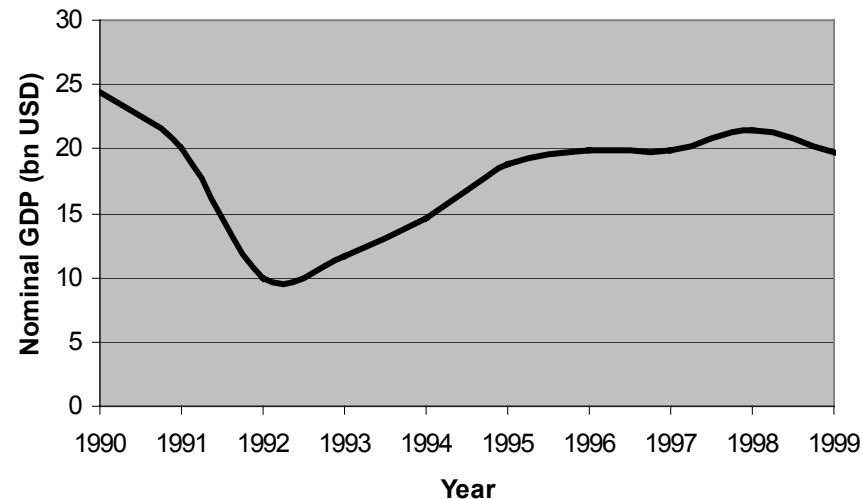
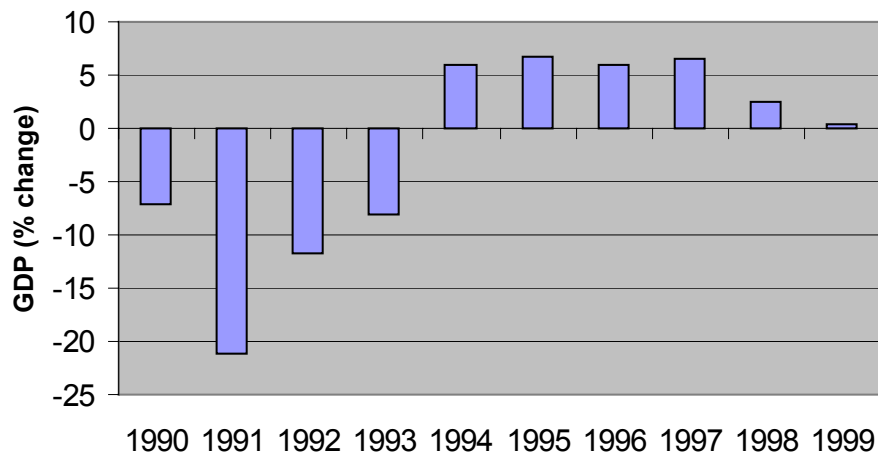
Draft conclusions proposed by the Chair

(FCCC/SBSTA/2002/L.7, June 12, 2002)

1. The SBSTA has considered the request of Croatia relating to the estimates of its 1990 base year greenhouse gas emissions with reference to Article 4.6 of the Convention (FCCC/SBI/2001/MISC.3).
2. The SBSTA expressed its appreciation to the Government of Croatia and to the secretariat for coordinating the in-depth review of the first national communication of Croatia as requested at its fifteenth session and for the prompt publication of the in-depth review report (FCCC/IDR.1/HRV and Add.1).
3. The SBSTA concluded that methodological aspects of the request of Croatia invoking flexibility under Article 4.6 of the Convention should be further considered at its next session, to the extent possible, with a view to advising the SBI at its seventeenth session.

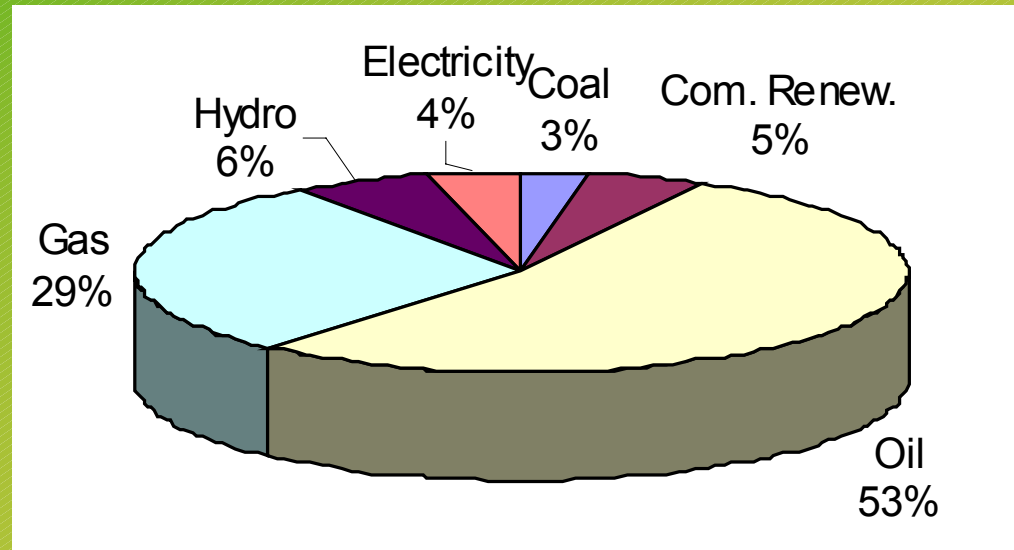


CROATIA - ECONOMY IN TRANSITION





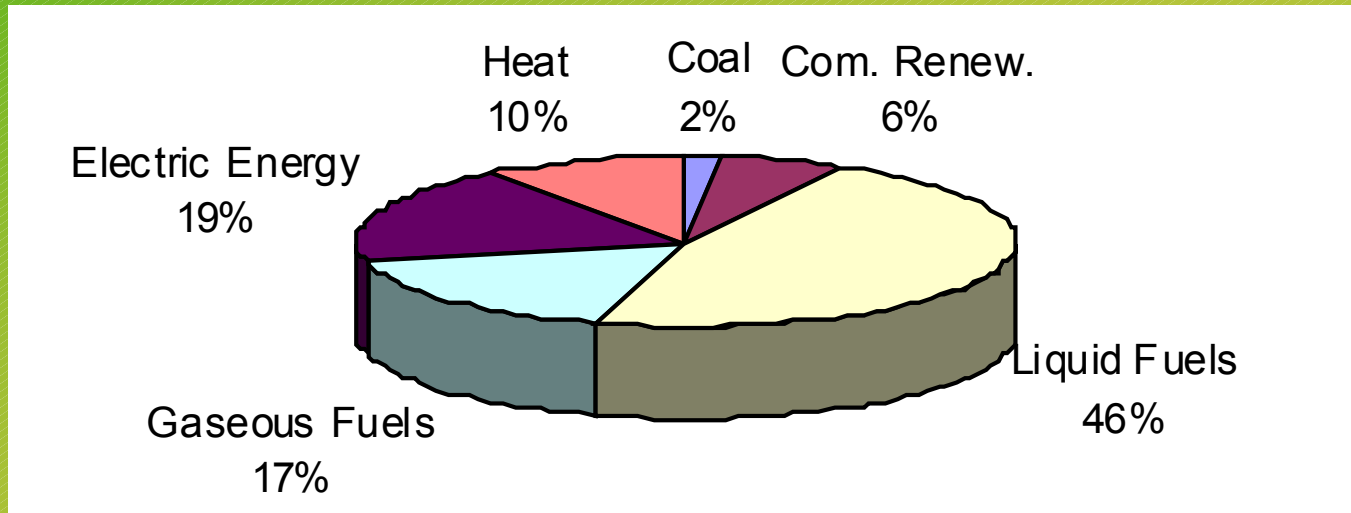
PRIMARY ENERGY



- Total primary energy supply - 7.6 Mtoe
- Per capita 1.6 toe
- Energy efficiency 2.8 USD/kgoe



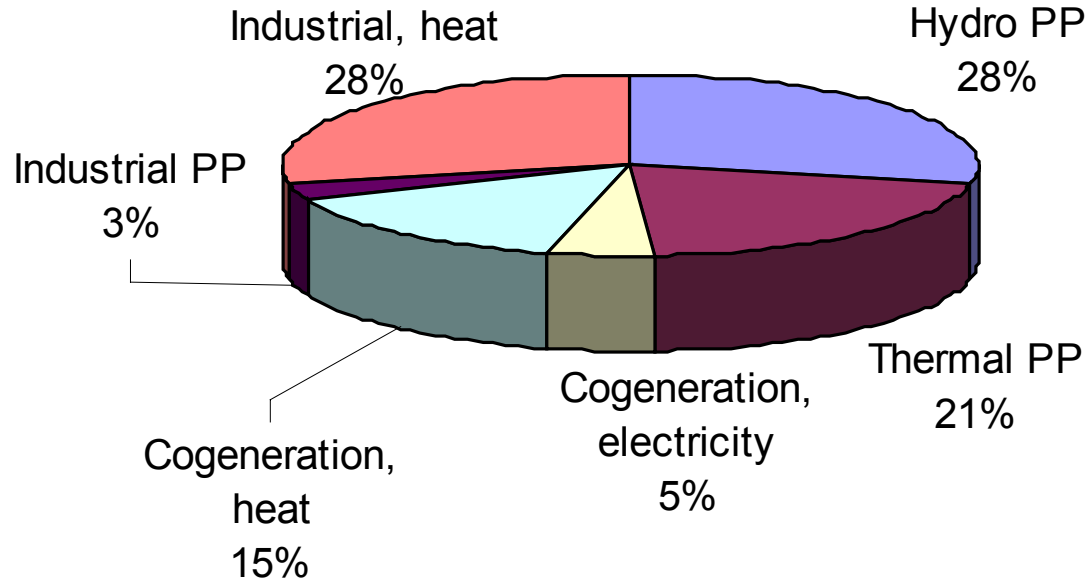
FINAL ENERGY CONSUMPTION



- Total final energy consumption - 5 Mtoe - 213 PJ
- Low importance of coal



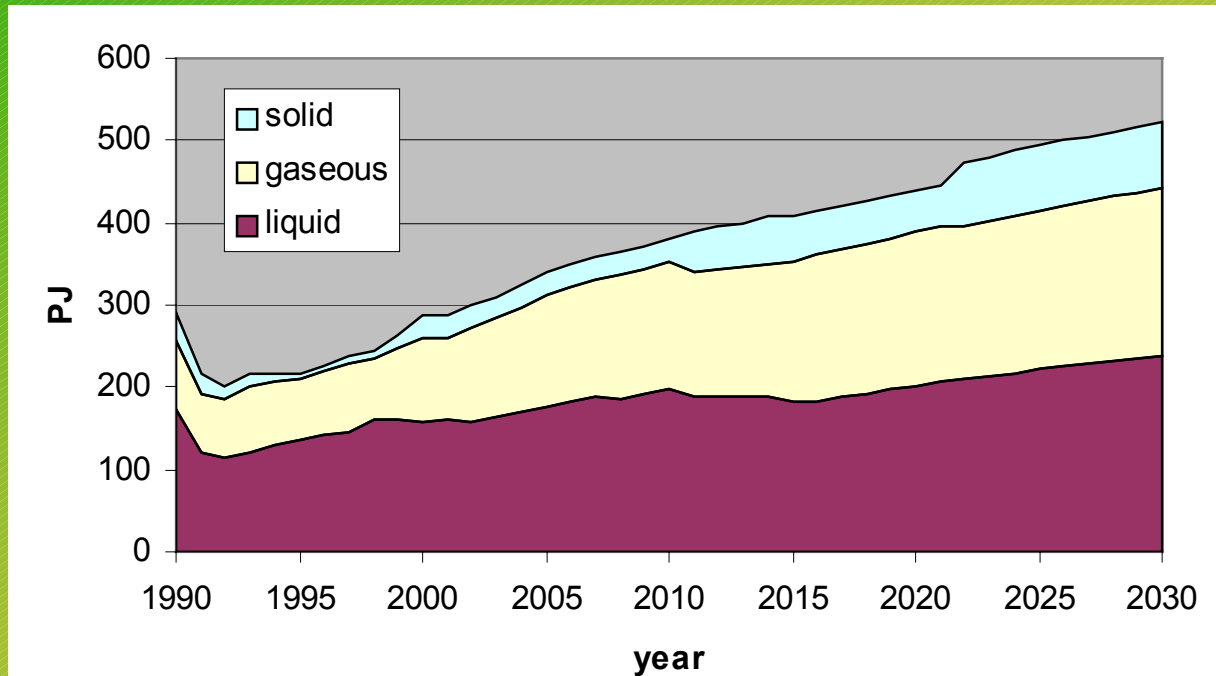
ELECTRICITY AND HEAT GENERATION



- Electricity generated - 10.9 TWh - 39 PJ
- Heat generated - 30 PJ
- Thermal Power Plants - 38 PJ of primary fuel



BUSINESS AS USUAL

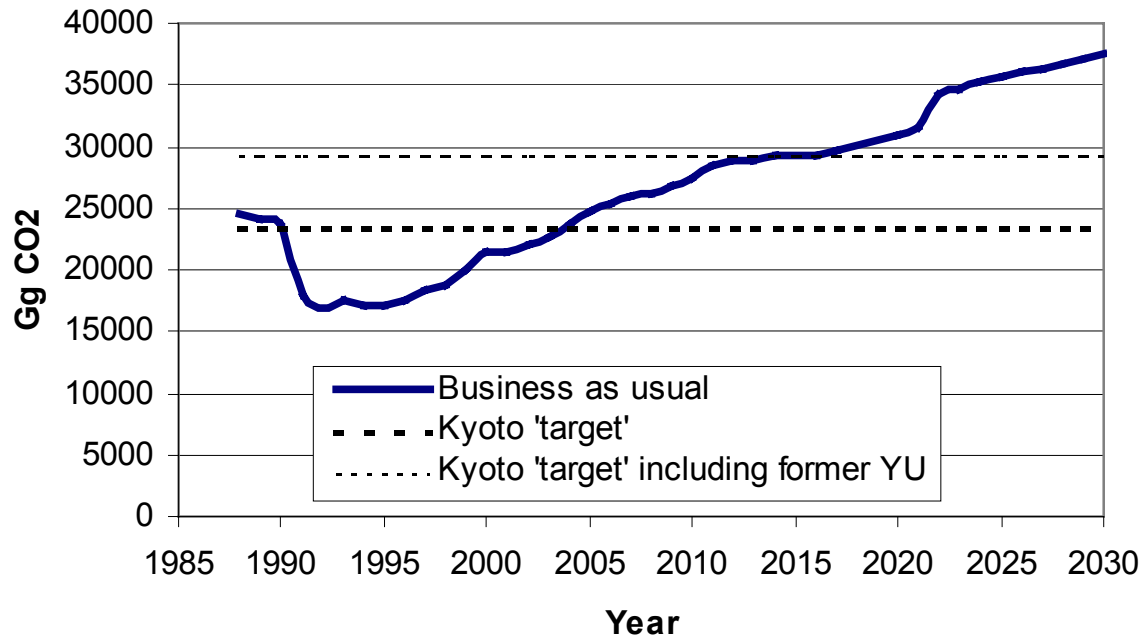


- Based on draft National Energy Strategy
- Modelled by ENPEP

- PP: 2100 MW CC, 850 MW coal, 333 MW HPP



BUSINESS AS USUAL

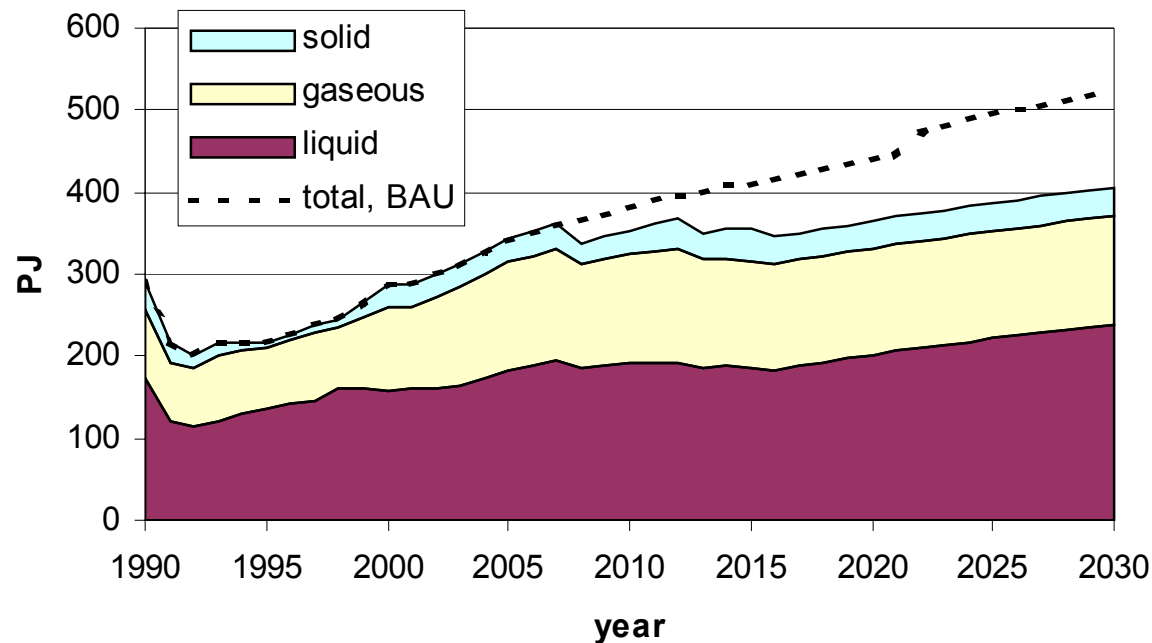


- Based on draft National Energy Strategy
- Modelled by ENPEP

- Breaching the 'target' in 2003 (or 2012 "s.c.")
- No "hot air" to sell (unless "special circumstances")



MINIMISED CO₂ IN ELECTRICITY GENERATION - NUCLEAR

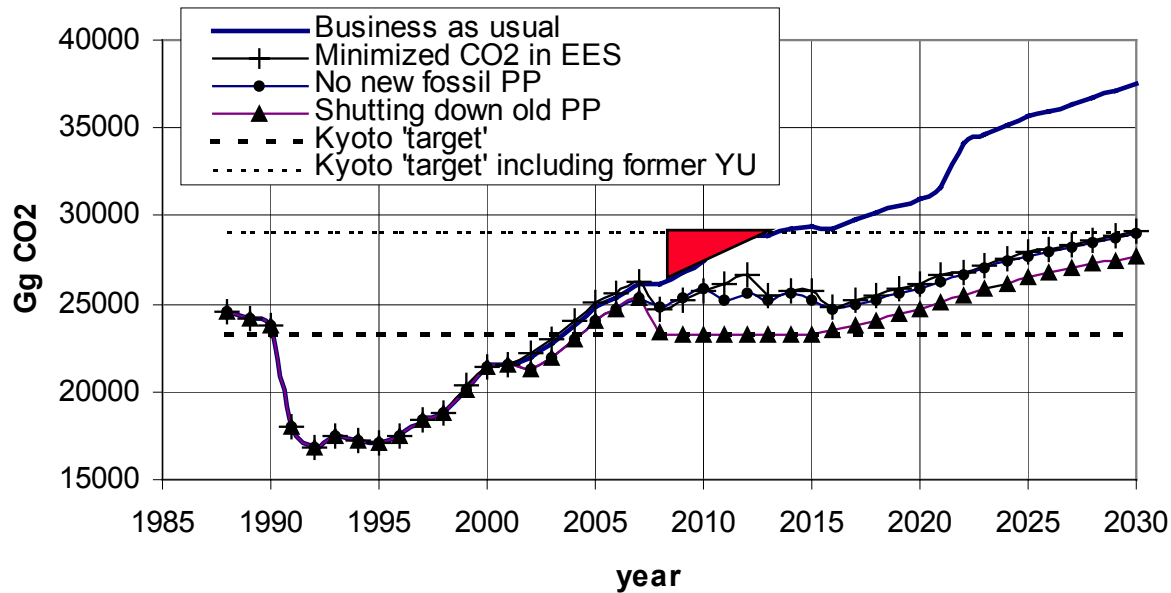


- Low cost CO₂ minimisation only in electricity sector
- Modelled by ENPEP

- PP: 200 MW CC, 3000 MW NPP, 333 MW HPP
- Else as in BAU



MINIMISED CO₂ IN ELECTRICITY GENERATION - NUCLEAR

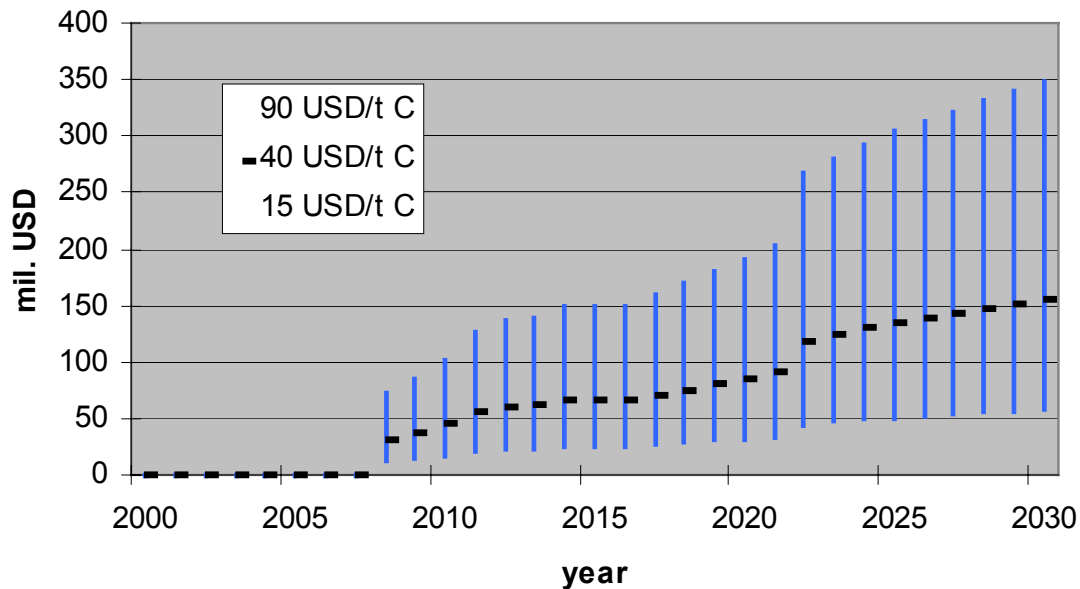


- Breaching the 'target' again in 2003 (or 2030 "s.c.")
- Lower overshooting

- Planning electricity generation capacity will not satisfy the KP commitment (unless "spec. circum.")
- Shutting down old PP prematurely would satisfy the KP commitment only until 2015



FINANCIAL REPERCUSSIONS



- Funds that should be available for domestic measures

Market price of certificates estimated at 15-40 USD/Mg C, with maximum of the average global mitigation price of 90 USD/Mg C

(based on OECD study that concluded that in case of emission trading the price of CO₂ reduction is 90 USD/Mg C)



NUCLEAR + KYOTO



- Regional integration would resolve the power system size problem for nuclear
- Annex I: Bulgaria, Croatia, Romania
- Non-Annex I: Albania, Bosnia, Macedonia, Serbia-Montenegro
- Synergies: electricity market + Clean Development Mechanism



NUCLEAR ENERGY



- Helping reduce **carbon dioxide emissions**
- Make a significant contribution to **sustainable development**
- Nuclear is **environmentally** friendly



NUCLEAR + KYOTO



<i>COUNTRIES</i>	<i>KYOTO TARGET</i> %	<i>ACTUAL</i> %	<i>SAVINGS FROM</i> <i>USING NUCLEAR</i> %	<i>IF NUCLEAR</i> <i>PLANTS WERE</i> <i>SHUT DOWN</i> %
INDUSTRIALIZED ECONOMIES				
Australia	+8	16	n/a	16
Austria*	-13	11	n/a	11
Belgium & Luxembourg*	-7.5 ⁰	13	-19	32
Canada	-6	14	-9	23
Denmark*	-21	11	n/a	11
Finland*	0	2	-24	26
France*	0	5	-52	57
Germany*	-21	-13	-9	-4
Greece*	+25	17	n/a	17
Iceland	+10	42	n/a	42
Italy*	-6.5	6	n/a	6
Japan	-6	12	-15	27
Netherlands*	-6	9	-1	10
New Zealand	0	16	n/a	16
Norway	+1	19	n/a	19
Portugal*	+27	46	n/a	46
Republic of Ireland*	+13	47	n/a	47
Spain*	+15	34	-13	47
Sweden*	+4	-2	-62	60
Switzerland	-8	1	-30	31
United Kingdom*	-12.5	-8	-9	1
USA	-7	13	-8	21
European Union	-8	1	-14	15



POSSIBLE GUIDELINES



- **Regional integration** of electricity markets
- Low cost domestic measures: **space heating**, industrial **energy efficiency**, **co-generation**, **solar thermal** energy (instead of gasification)
- The funds for future buying of certificates could be used for **domestic measures**



CONCLUSIONS



- Need for a **National Climate Change Strategy** (Environmental Protection Strategy is not mentioning KP)
- Everything depend on **Special circumstances**
- Croatia will have no “hot air” to sell (unless “s.c.”)
- KP commitments cannot be achieved only through measures in electricity generation sector (unless “s.c.”)