

Joint Implementation Opportunities in the Bioenergy and Land Use Sectors in Croatia

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Workshop 1 March 2001

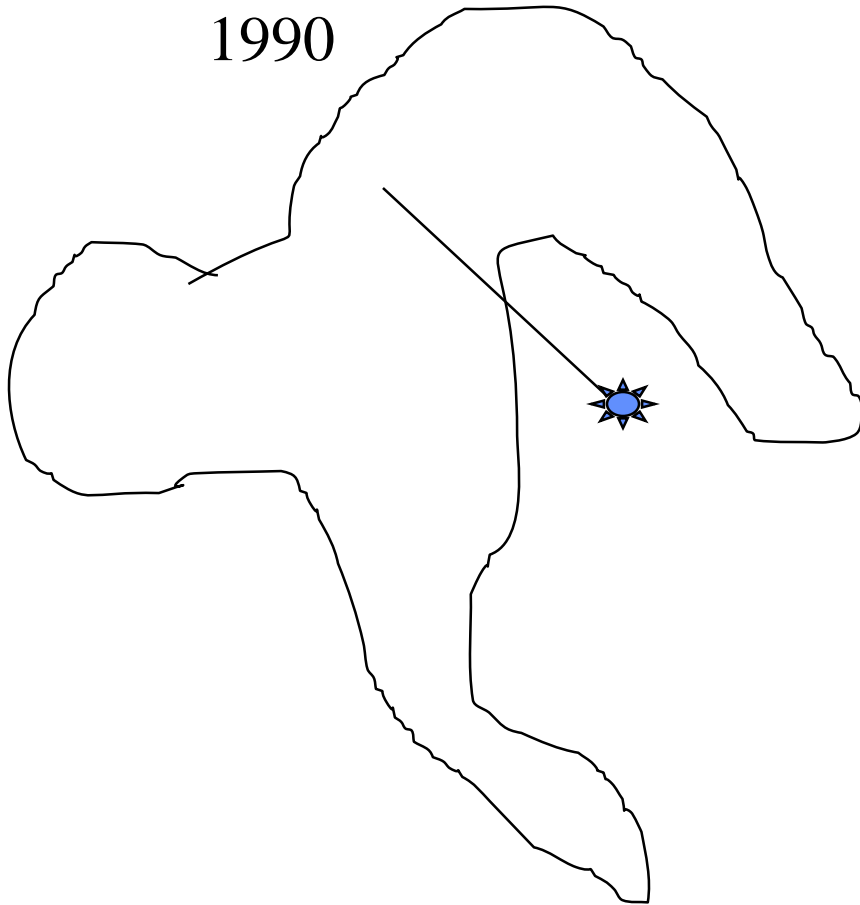
- Ministry of Environmental Protection and Physical Planning
- EKONERG Holding
- Energy Institute Hrvoje Pozar
- IEA Bioenergy Task 38
- **“Opportunities for Joint Implementation (JI) projects in Bioenergy and Land Use Sectors in Croatia”**

Croatia

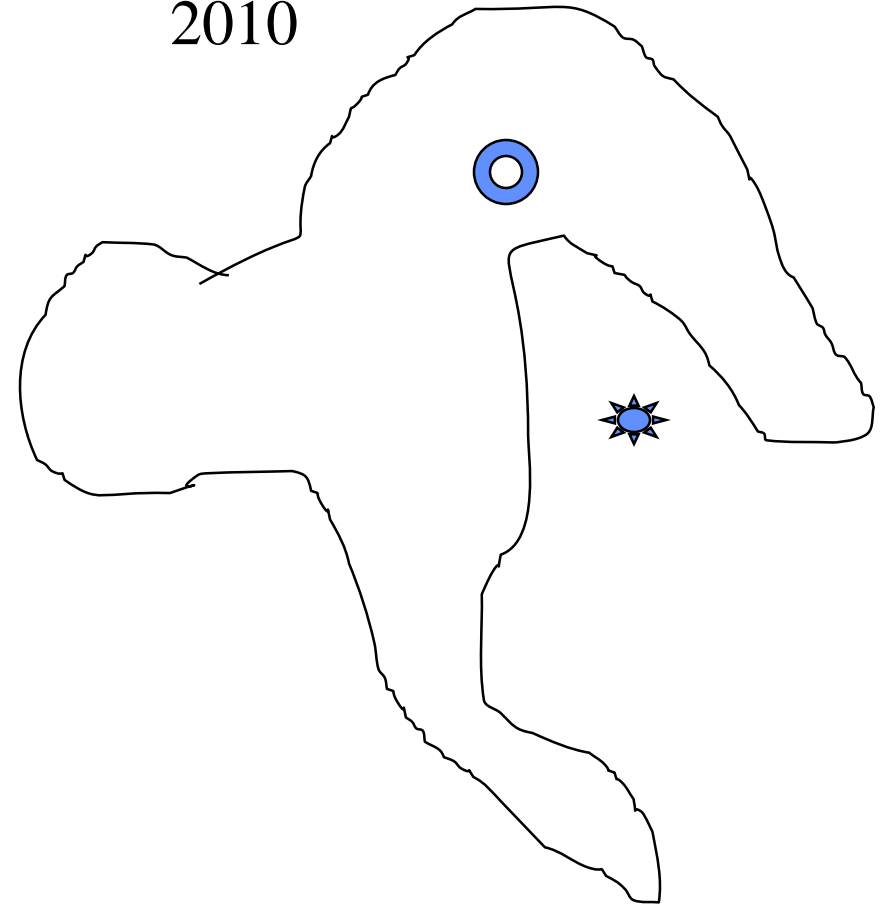
- Unique structure of electricity sector (mostly hydro)
- Very low emissions in 1990 (economy, political situation)
- Flexibility in selection of baseline year not helpful
- National Communication to be submitted any day
- Power plant outside national territory

Power plant in 1990 base year

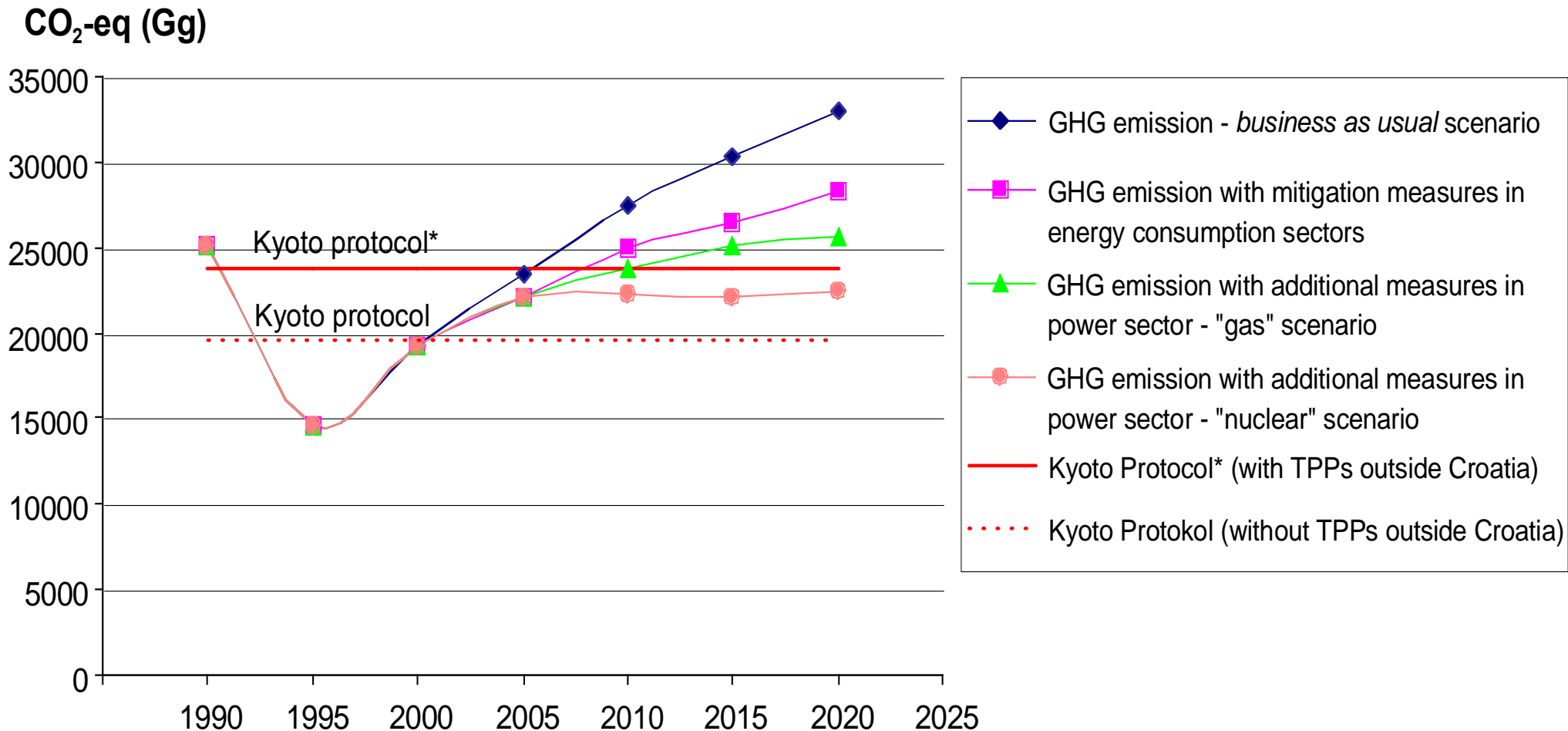
1990



2010



GHG emissions from energy sector (projection)

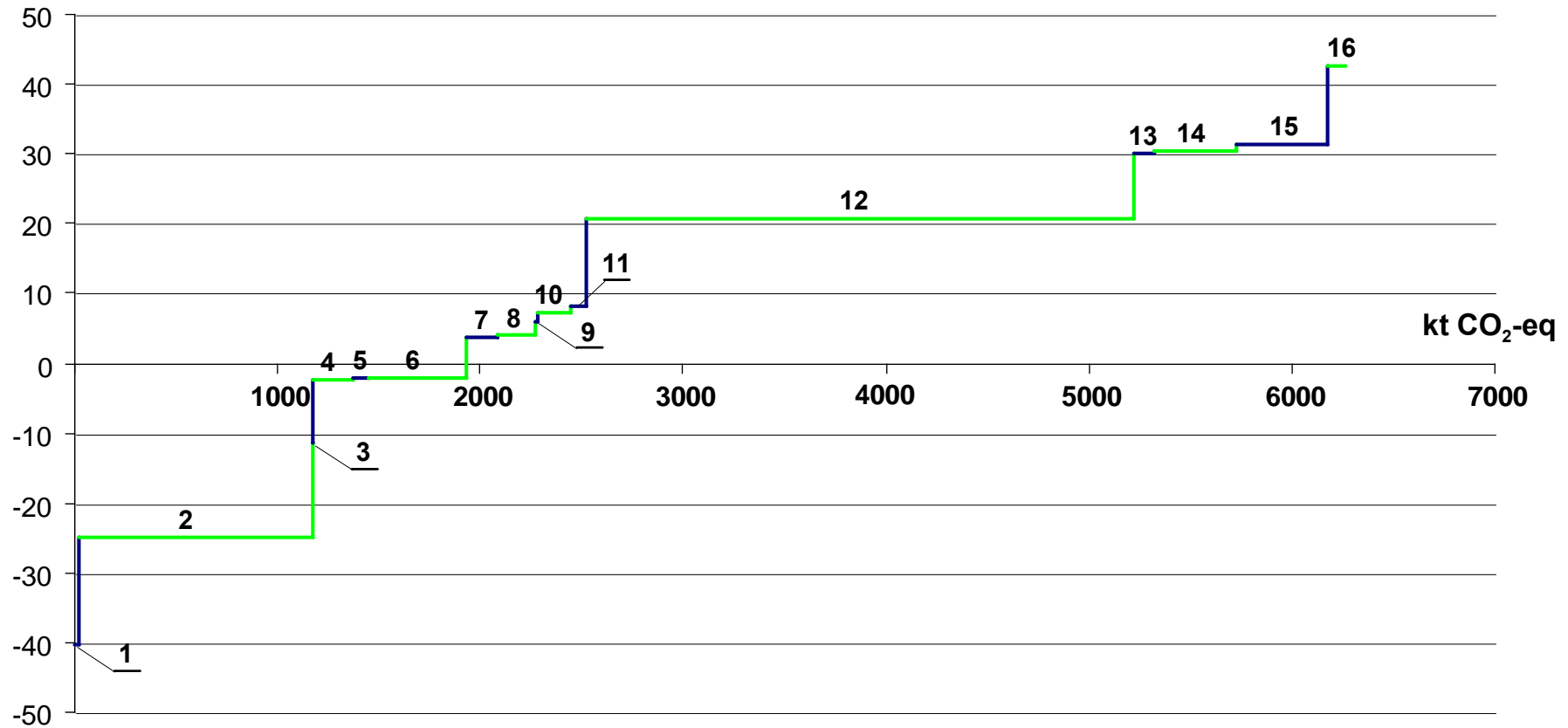


Contribution of energy-related GHG mitigation measures, 2010

Mitigation measures	Sector	GHG emission reduction CO ₂ -eq (kt)	Share in total emission (%)
Gas scenario instead of <i>business as usual</i>	Power sector	1146	4.2
Thermal insulation improvement	Resid. & Services	847	3.1
DSM measures in non-heat electricity use	Resid. & Services	509	1.9
Increased use of solar energy	Resid. & Services	277	1.0
Increased use of district heating and cogeneration	Resid. & Services	218	0.8
Improving electro-motor efficiency	Industry	187	0.7
More efficient technologies of heat generation	Industry	186	0.7
More cogeneration facilities	Industry	164	0.6
Increased use of biodiesel and hydrogen	Transport	100	0.4
Measures in inter-city passenger transport	Transport	40	0.1
Increased use of geothermal energy	Services	17	0.1
Fuel switching (natural gas instead of liquid fossil fuels)	Services	2	0.0
Contribution of mitigation measures	Energy	3693	13.5
GHG Emission according to <i>business as usual</i> sc.	Energy	27447	100.0
Kyoto obligation (with TPPs outside Croatia)	Energy	3627	13.2
Kyoto obligation (without TPPs outside Croatia)	Energy	7705	28.0

Marginal costs of mitigation measures in Energy Sector, 2010

USD/tCO₂-eq



- | | |
|--|---|
| 1 - DSM measures in Services | 9 - Geothermal energy in Services |
| 2 - "Gas" scenario of Power sector development | 10 - Cogeneration in Industry |
| 3 - Fuel switching in Services | 11 - District heating and cogeneration in Services |
| 4 - Solar energy in Residential sector | 12 - "Nuclear" scenario of Power sector development |
| 5 - Solar energy in Services | 13 - Low-temperature heat generation in Industry |
| 6 - DSM measures in Residential sector | 14 - Fuel switching in Residential sector |
| 7 - DSM measures in Commercial sector | 15 - Fuel switching in Commercial sector |
| 8 - DSM measures in Industrial sector | 16 - Fuel switching in Industrial sector |

Croatia

- Greatest single emission reduction potential (2,5 to 4 MtCO₂ equ) through bioenergy
- Opportunities in biomass export

Joint Implementation

- Financing very expensive --> otherwise attractive projects require outside support
- Competition with CDM
- Equal playing field?
- Compliance as pre-requisite for JI

Joint Implementation

- Project bundling due to size of projects
- Need for establishing baselines for various sectors and/or regions. For example baselines for:
 - agricultural and forestry waste
 - heat production
 - electricity production
 - CHP

Generic electricity baselines

— Czech Republic	699 t CO ₂ / GWh
— Estonia	1090 t CO ₂ / GWh
— Hungary	779 t CO ₂ / GWh
— Poland	757 t CO ₂ / GWh
— Slovenia	270 t CO ₂ / GWh

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- Involvement of stakeholders that had not met before to discuss JI
- Various ministries (Env Ministry established 1 year ago)
- Private sector (role to be developed)
- Bioenergy now receives more room in internal discussion of mitigation measures

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- Reforestation potential 300 000 ha (max 3 MtCO₂)
- Bioenergy 2,5-4 MtCO₂
- ERU - PT: Interested, but project bundling required (200 000 tons minimum). Includes funding for JI focal point.
- Project: “Velica Gorica” (near Zagreb): 100 000 MWh/yr, 15 Mw_{el} capacity.

Outlook

- Baselines study in Task 38 (involving potential JI host countries in the Task)
 - Methodological work
 - country /sector / region specific baselines
 - historical assessment of baselines
- Case studies
- “Project clearinghouse”