



REPUBLIKA HRVATSKA

MINISTARSTVO ZAŠTITE
OKOLIŠA I PRIRODE

Environment and Climate
Regional Accession Network **ECRAN**

SEA/EIA in Industrial Sector

Croatian experience

Skopje, 21–22 September

Anamarija Matak



Industrial Sector in Croatia

- ...
- ✓ development of transport - eg. city of Rijeka
(gas plant, leather factory, chemical product factory, shipyards, tobacco industry, oil refinery, torpedo factory)

Zagreb, Sisak, Osijek

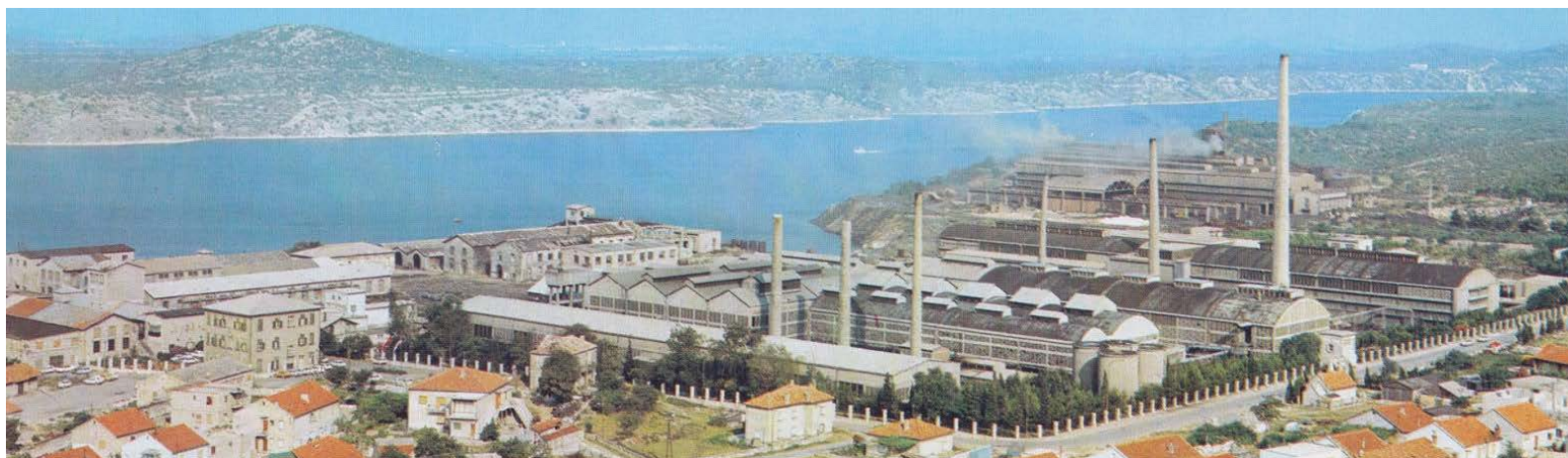




Industrial Sector in Croatia

✓ post war industrialization

- intensive industrialization in the 1960s and 1970s
- underdeveloped areas, coastal (?!?) areas
- heavy industries (refineries, hydrocarbon exploration & production, ferroalloy plants, production of basic metals)
- Šibenik, Split





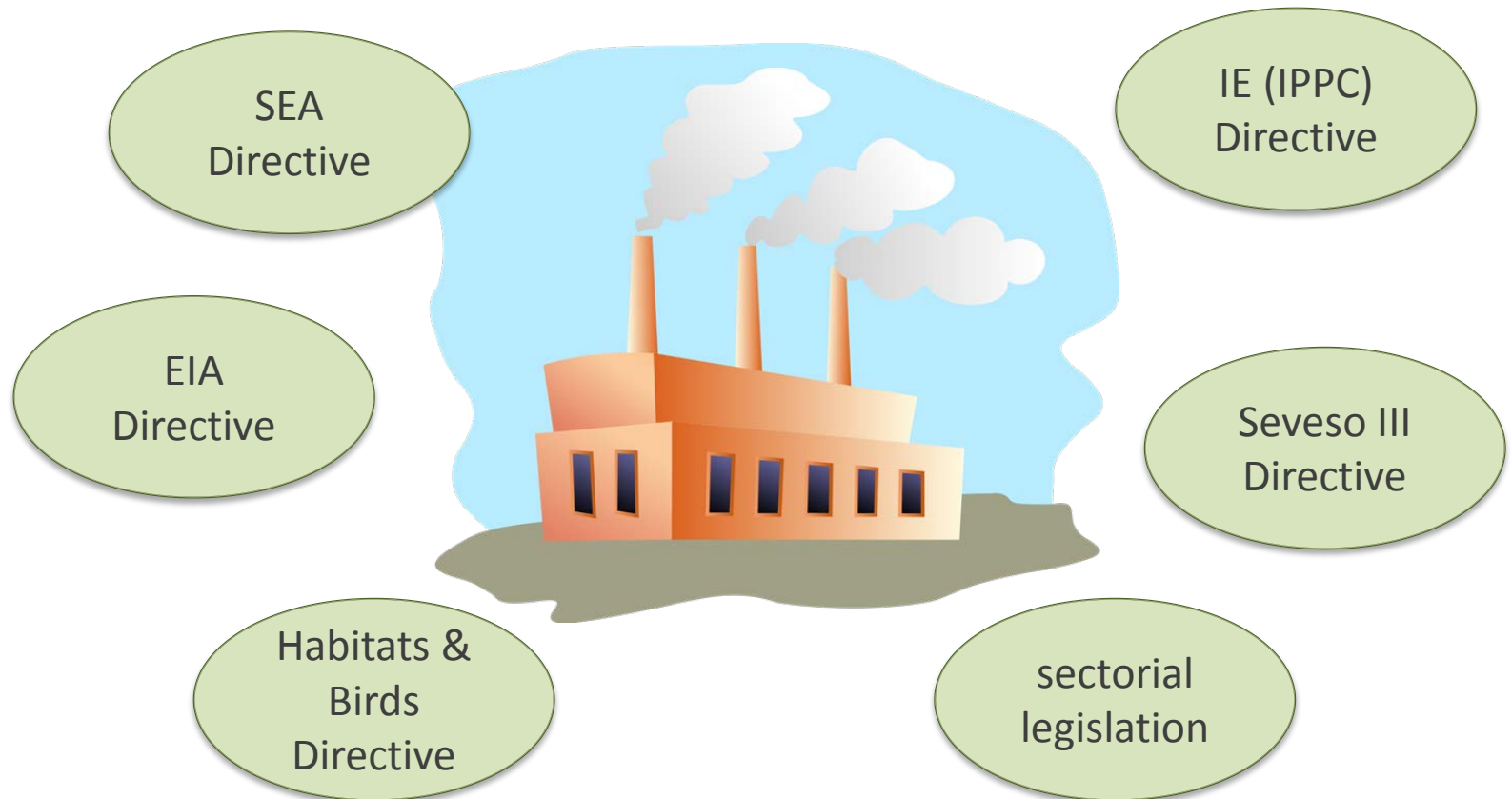
Industrial Sector in Croatia

... 1990 → ...transition to a market economy

- ✓ significant decrease in industrial production (eg. basic metals and fabricated metal products)
 - ❑ high cost of production, decrease in export of industrial products, consequences of the war, worn-out industrial equipment, lack of financial resources for industrial investment including investments for fulfilling the new environmental requirements
- ✓ food industry
- ✓ chemical industry (ammonia, vinyl chloride, fertilizers, polyethylene...)



Environmental legislation





SEA

✓ Mandatory SEA

- strategies, plans or programmes, adopted at the state, regional and local level in the following sectors: agriculture, forestry, fishery, **energy, industry, mining, transport, electronic communications, tourism, spatial planning, regional development**, waste management and water management, when setting the framework for projects subject to environmental impact assessment;

✓ Screening

- minor modifications SPP



SEA

- ✓ Industrial Strategy of the Republic of Croatia 🙄
- ✓ State plan for spatial development
- ✓ Energy Strategy 🙄
- ✓ Regional Development Strategy
- ✓ spatial plans for counties
- ✓



EIA

✓ **Annex I – mandatory full EIA (EIA Regulation)**

- ☐ installations for production and processing oil and natural gas
- ☐ gasification and liquefaction of 500 t or more of coal or bituminous shale per day
- ☐ power plants (100 MW)
- ☐ production of crude iron, steel and ferroalloys, non-ferrous metals
- ☐ chemical installations for industrial production
- ☐ industrial plants for the production of cellulose and pulp
- ☐ industrial plants for the production of paper and board (100 t/per day)
- ☐ exploitation of mineral resources
- ☐ storages (oil, LNG, oil products (50.000 t), LPG (10.000 t), chemical products (50.000 t)
- ☐ all other projects for which it is required to obtain integrated environmental license (IED)



EIA

✓ Annex II – screening (EIA Regulation)

- ☐ **energy** (energy plants (10MW), surface and underground storage of NG, fossil fuels, combustible gases (5000 m³))
- ☐ **production and processing of metals** (processing of ferrous metals (500kg/h), ferrous metal foundries, smelting installations, treatment of metals and plastics materials, motor vehicles, shipyards, construction and repair of the aircraft, railway equipment, treatment of metallic ores...)
- ☐ **industrial processing of minerals**
- ☐ **chemical industry** (pesticides, pharmaceutical products, paint and varnishes, peroxides)
- ☐ **food industry** (oil and fats, production and processing and packing of animal or vegetable products (1 t/day), milk, malt and yeast, confectionery and syrup, sugar, fish flour, alcoholic and non-alcoholic beverages (2 mil. l/y), tobacco products)



EIA

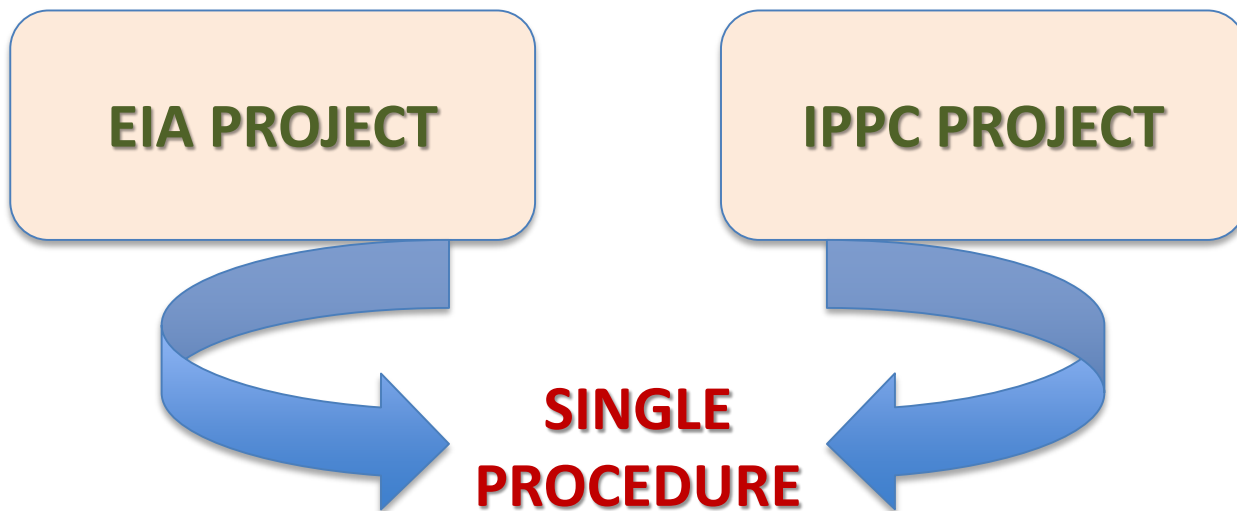
✓ Annex II – screening (EIA Regulation)

- ☐ **textile, leather, wood and paper industries** (no thresholds)
- ☐ **rubber industry**
- ☐ **infrastructure projects** (industrial estate development projects)
- ☐ **other** – test benches for engines, turbines or reactors, production of artificial mineral fibres, installations for destruction of explosive substances, bitumen mixing-plant (100 t/h), concrete-elements plant (30 m³/h)



Procedural aspects

✓ EPA (2007)





Procedural aspects

✓ Single procedure - experience

- ☐ 2009-2012 cca 22 EIA/IPPC projects
- ☐ 9 intensive farming, 4 regional waste management centers, **9 industry/energy**
- ☐ results of implementation of single procedure were **below expectations**
 - differences between the objective
 - differences between the scope
 - different level of documentation (Basic Design vs. Main Design)
 - frequent changes



Procedural aspects

- ✓ EIA – prior to location permit
- ✓ CA – Ministry of Environment and Nature Protection (MENP)
- ✓ Integrated environmental license/permit – before use permit
- ✓ Natura 2000 i WFD assessment – joint procedure
- ✓ IED, Seveso III - BAT, risk assessment
- ✓ Advisory expert Committee:
 - ☐ nature protection, IPPC, local unit, water management , air, noise, waste management, human health, spatial planning, risk assessment ...
- ✓ measures and/or monitoring established in EIA decision
is mandatory part of the project implementation permits
which have to be issued (LP & BP)

Procedural aspects

- ✓ EIA officials are involved in LP and BP procedures
- ✓ MENP confirms – measures and conditions from EIA are part of the main design – formal procedure
- ✓ prior to use permit - technical inspection – MENP participates
- ✓ control the fulfillment of the monitoring and mitigation measures, integrated in the EIA decisions – environmental inspection
- ✓ coordinated inspectional supervisions



EIA

	2010	2011	2012	2013	2014	2015
Overall EIA's	79	71	69	60	52	45
Industry	10	3	8	5	1	2
Energy	4	7	2	11	9	4
Exploitation of mineral resources*	18	21	22	19	7	8

* oil; gas; ceramic and refractory clay; raw materials for the production of cement and lime; carbonate and silicon raw materials for industrial processing; architectural and building stone; technical building stone; construction sand and gravel and brick clay

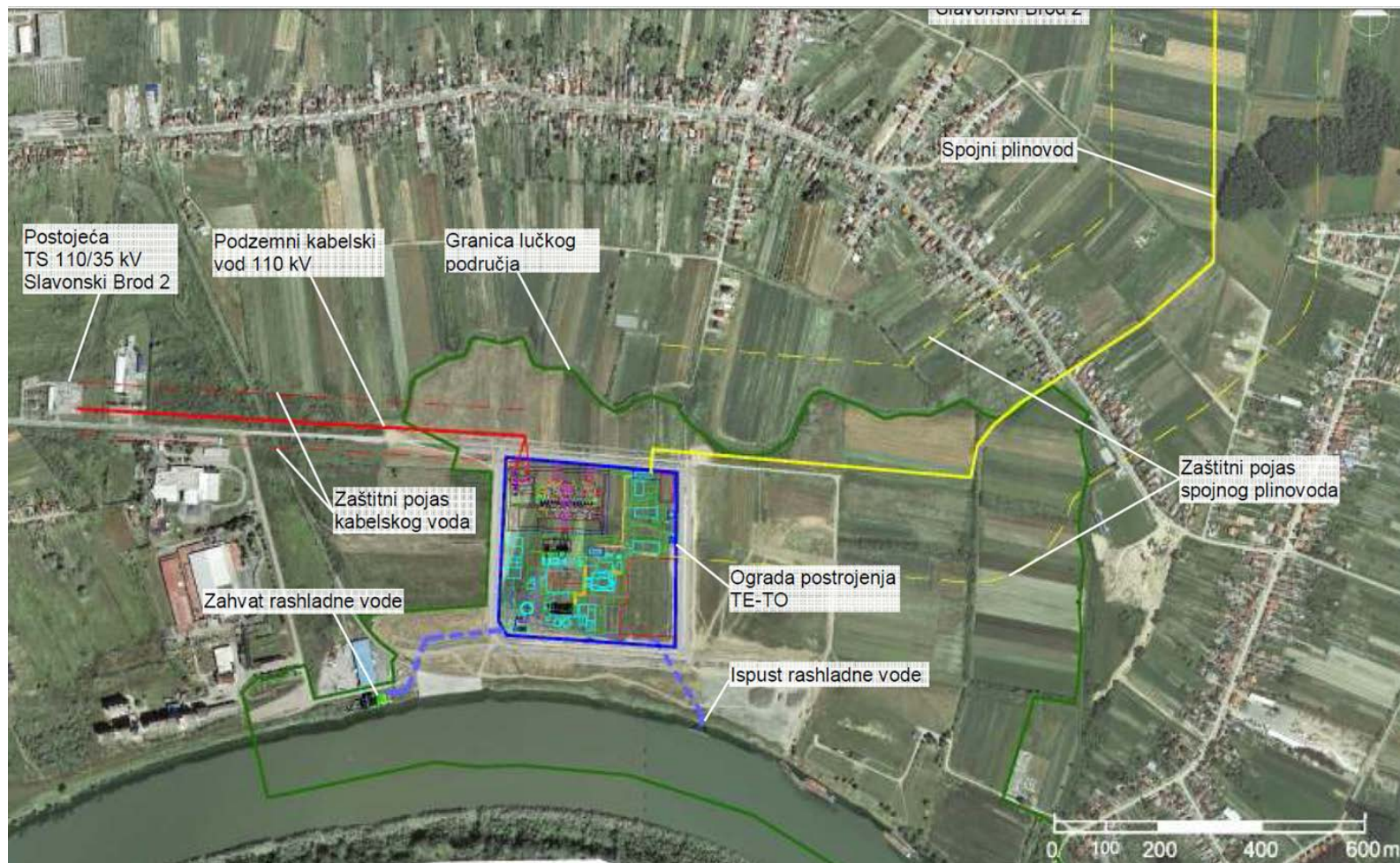


EIA

- ✓ **reconstruction/modernization of existing installation**
- ✓ **use of alternative fuels in existing industrial installations (RDF, SRF; waste ...),**
- ✓ **recovery and remediation of „old installations” – highly polluted location**
- ✓ **bitumen mixing-plant, concrete-elements plant,**
- ✓ **pharmaceutical industry**
- ✓ **food industry (Annex II) –screening**
 - ✓ **2015 – cca 400 screenings – 10% small food production**

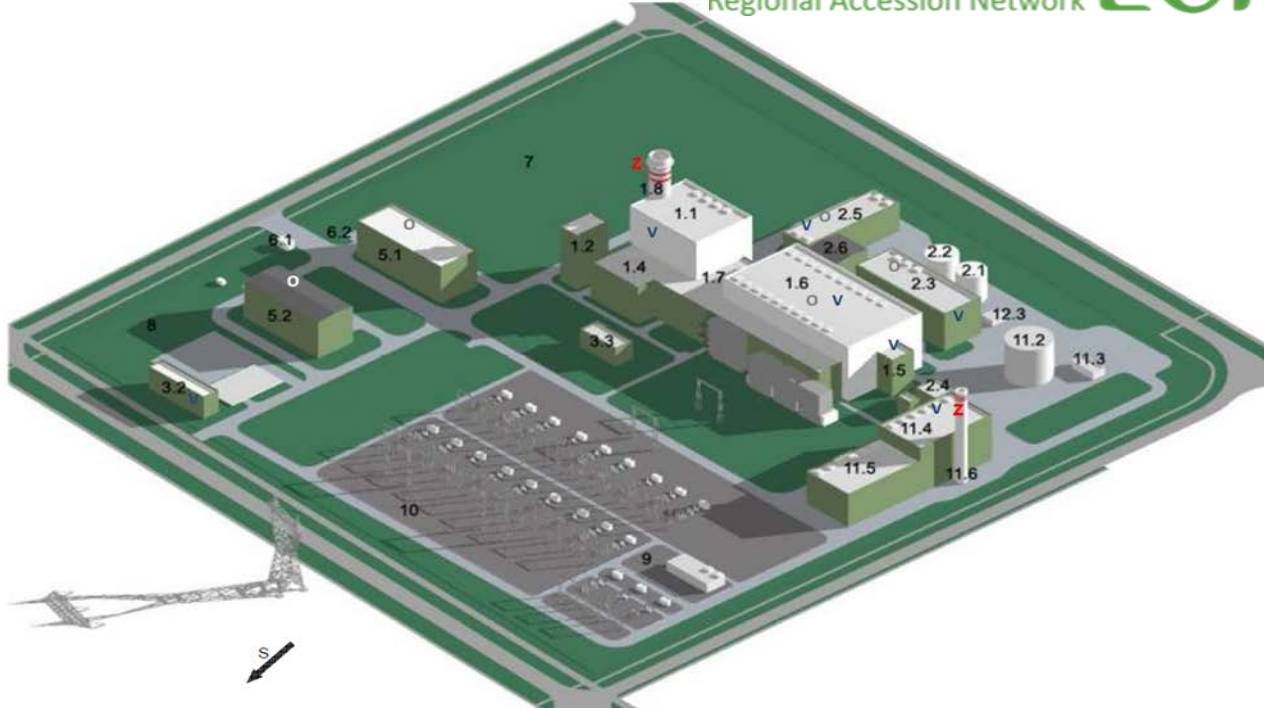


Project of a combined cycle gas thermal power plant in Slavonski Brod



LEGENDA:

1. GLAVNI POGONSKI OBJEKT
- 1.1 KOTAO NA OTPADNU TOPLINU
- 1.2 POMOĆI START KOTAO
- 1.4 ZGRADA NAPONIH PUMPI
- 1.5 GRADEVINA OBRADU KONDEZATA
- 1.6 STROJARNICA
- 1.7 GRADEVINA DIFUZORA PLINSKE TURBINE
2. KEMIJSKA PRIPREMA VODE
- 2.1 SPREMNIK SIROVE (SAVSKE) VODE
- 2.2 SPREMNIK DEMINERALIZIRANE VODE
- 2.3 GRADEVINA KEMIJSKE PRIPREME VODE
- 2.4 GRADEVINA ZA REGENERACIJSKO POSTROJENJE
- 2.5 GRADEVINA ZA OBRADU OTPADNIH VODA I MULJEVA
- 2.6 VANJSKO NATRIVNO SKLADIŠTE KEMIKAJIJA
3. SUSTAV DOBAVE PLINSKOG GORIVA
- 3.2 PLINSKA REGULACIJSKA STANICA
- 3.3 GRADEVINA ZAVRŠNE FILTRACIJE I PREGRIJAVANJA PLINA
5. UPRAVNA ZGRADA/CENTRALNA KOMANDA I RADIONICA
- 5.1 CENTRALNA KOMANDA/UPRAVNA ZGRADA
- 5.2 RADIONICE
6. VRATARNICA/PARKIRALIŠTE
- 6.1 VRATARNICA
- 6.2 PARKIRALIŠTE
7. PROSTOR REZERVIRAN ZA POSTROJENJE ZA IZDAVANJE CO₂
8. PROSTOR REZERVIRAN ZA KOMPRESOR PRIRODNOG PLINA
9. 110 KV RASKLOPIŠTE
10. 400 KV RASKLOPIŠTE
11. POSTROJENJA POMOĆNIH IZVORA TOPLINSKE ENERGJE
- 11.1 GRADEVINA ZA PRETOVAR TEKUĆEG GORIVA/ISTAKALIŠTE
- 11.2 SPREMNIK TEKUĆEG GORIVA
- 11.3 GRADEVINA ZA PUMPE TEKUĆEG GORIVA
- 11.4 KOTLOVNICA INDUSTRIJSKE PARE
- 11.5 TOPLINSKA KOTLOVNICA
- 11.6 DIMNJAK POMOĆNE KOTLOVNICE



Sl. 1.2-6: Trodimenzionalni prikaz postrojenja TE-TO Slavonski Brod

- ✓ nominal power 600 MW
- ✓ energy source – natural gas
- ✓ production of electricity, steam, heating and low-temperature heat
- ✓ surface – 112 757 m²

- ✓ connecting pipeline
- ✓ production facility and associated systems located within the fence
- ✓ cooling water system (usage & discharge)
- ✓ underground cable line 110 kV



Project of a combined cycle gas thermal power plant in Slavonski Brod

Location:

- near city Slavonski Brod
- banks of the river Sava
- port area
- state border – Bosnia and Herzegovina

Most important environmental issues:

- high air pollution in Slavonski Brod (hydrogen sulfide, ozon, PM 2.5, sulfur dioxide)
- discharging heated water
- transboundary impacts
- public
- impact on rural landscape



Project of a combined cycle gas thermal power plant in Slavonski Brod

Air:

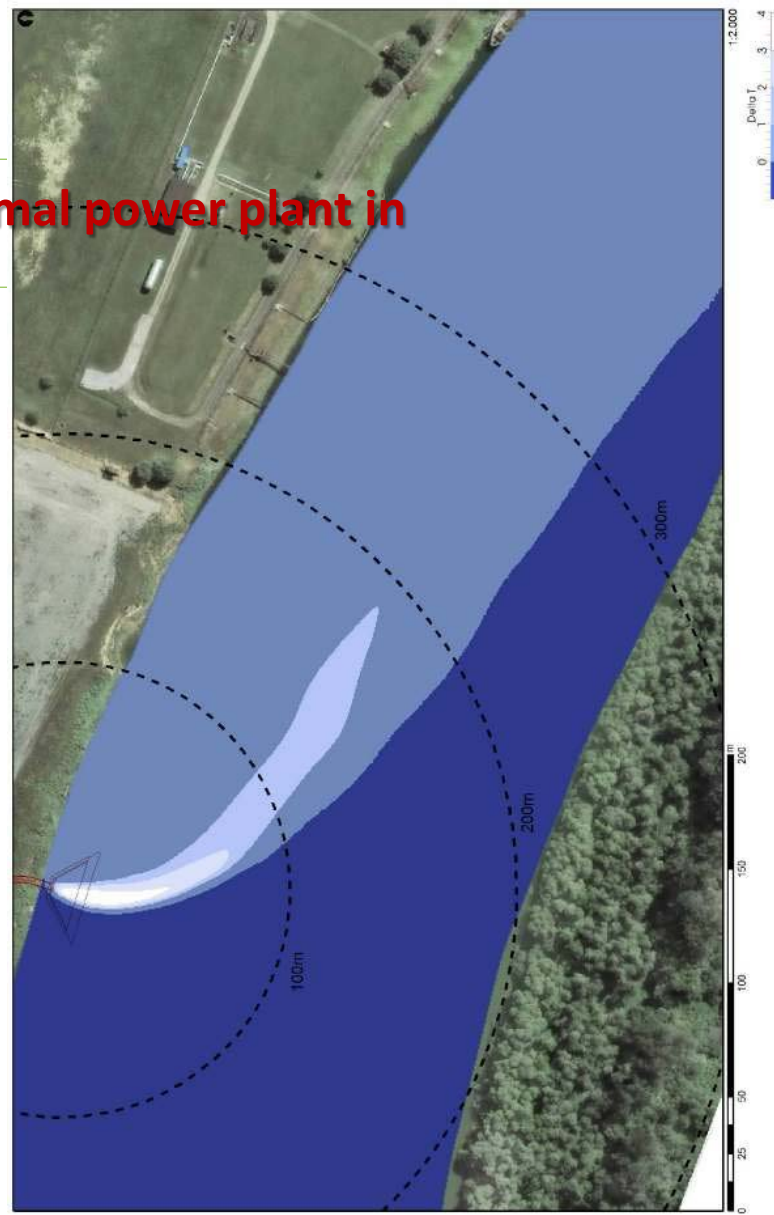
- chimney height – optimization
- air quality modeling – available data
- impact on air quality – local, regional and global level
- cumulative impact – NO_2 , SO_2 , $\text{PM}_{2,5}$

With all technical solutions and measures (chimney height, chimney filtering system) it is estimated that there will be no deterioration in air quality.

Project of a combined cycle gas thermal power plant in Slavonski Brod

Water:

- thermal effect of the cooling system on the Sava River - discharging heated water
- numerical simulations on thermal diffusion
- 200 meters – less than 1 ° C





Project of a combined cycle gas thermal power plant in Slavonski Brod

Transboundary consultation with BiH – Espoo

Public – communication plan, activities beyond legal obligations



Sl. 4.2-37: Točka 4 (umanjeni prikaz panoramske fotografije):
GORE: Postojeće stanje
SREDINA: Planirano stanje
DOLJE: Planirano stanje s prikazom mogućeg vegetacijskog zaštitnog pojasa



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QUESTIONS

