



The Government of the Republic of Croatia

**Starting a New Investment Cycle in
the Republic of Croatia in the
mandate 2012-2015
-projects background-**



INVESTMENT OPPORTUNITIES IN ENERGY SECTOR

NEW PROJECTS – ENERGY EFFICIENCY

- EU Energy Policy, *inter alia*, demands energy efficiency increase
- Potential for energy efficiency increase is present in all sectors of consumption, especially in building sector (buildings account for about 40% of total energy consumption and 80% of the existing buildings have more than 60% of unnecessary energy loss)
 - ▣ Energy efficiency improvement of the existing public buildings and housings
- Completion of new energy efficient facilities by PPP model
- In 2012, it is possible to complete total investments amounting to HRK 1.8 billion or € 240 million

INVESTMENT OPPORTUNITIES

- Before large investments we need to further develop distribution and transmission network
- Planned investment in D&T in 2012 € - 150 million
- Development of D&T prerequisite for accepting energy from large projects and also from wind power plants
- New RES act will be in procedure in June
- International tenders for RES that will be part of the Offset program

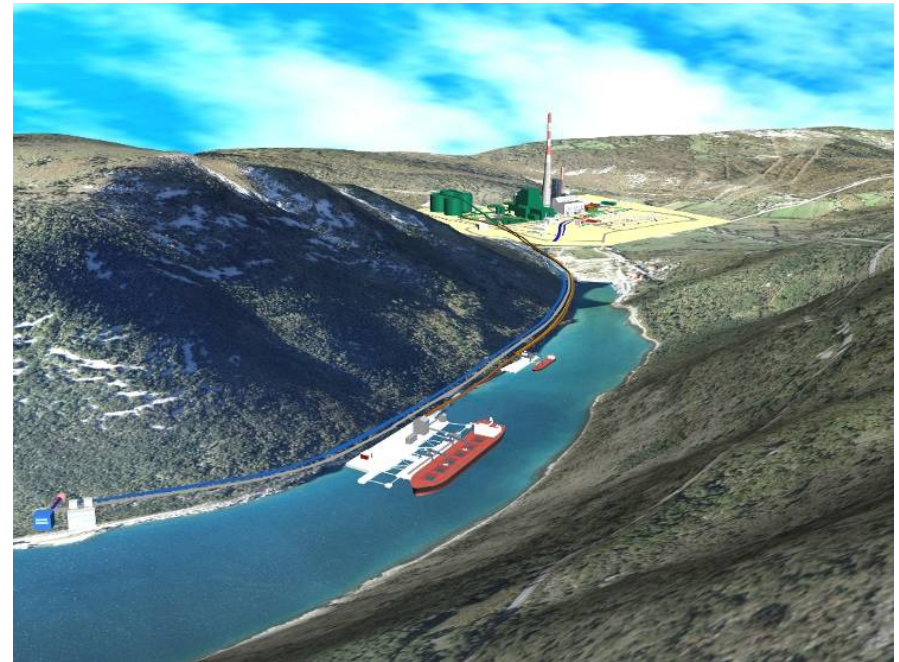
THERMAL PP SISAK C

- Main characteristics:
 - Gas cogeneration facility under construction
 - installed power 230 MW of electric power and 50 MW thermal power
 - total investment €225 million (70 million € clearing debt)
 - planned completion at the beginning of 2013



TPP PLOMIN C

- At the site of Plomin, Istria County, there are the two installed units: Plomin 1 TPP and Plomin 2 TPP, owned by TE Plomin d.o.o. (Ltd).
- Plomin 1 TPP approaches the end of its technological and economic cost-efficiency useful life and it would be replaced with the new block of Plomin C-500 TPP.
- The new coal-fired block of 500 MW with minimum adverse effects on the environment will be able to achieve the net power efficiency of more than 45.58%.



- ◆ **Estimated annual electricity generation is 3.5 TWh.**
- ◆ **Estimated investment is 800 million Euros. The value of existing infrastructure and new 400 kV transmission line is taken into account.**
- ◆ **HEP is interested in loan financing of the project.**

TPP PLOMIN C – CURRENT STATUS

- ❑ 1st location permit (out of 7) for construction of coal warehouse obtained (2nd location permit is in process)
- ❑ Investment for construction works in 2012 estimated to 20 million €
- ❑ Location permit for main facility expected at the beginning of May
- ❑ After location permit is issued a tender for strategic partner will be announced
- ❑ Main goal is that the construction works on the main facility begin in 2012
- ❑ Estimated deadline for completion of the project - 2018

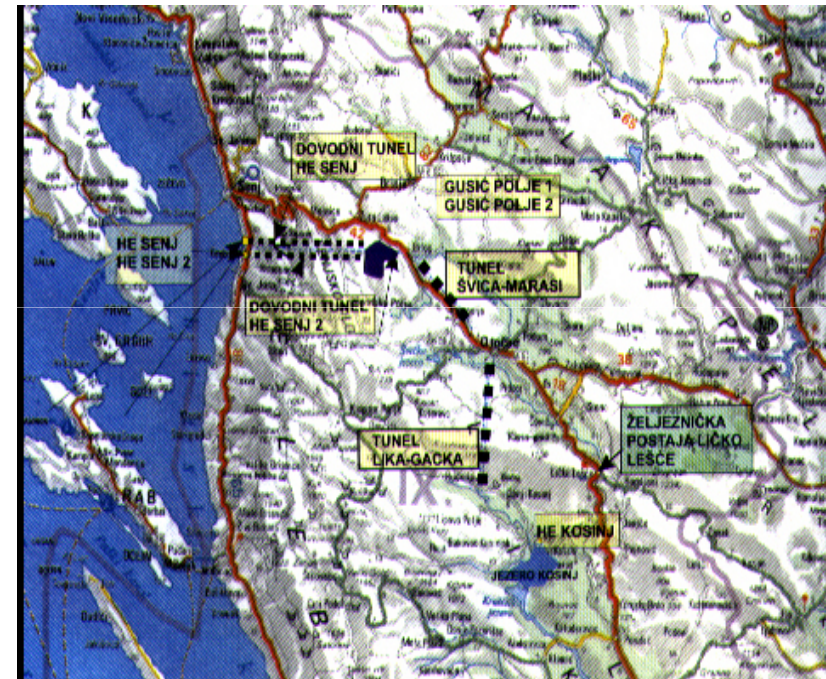
RIJEKA TPP

- **Basic characteristics:**
 - ▣ Combined gas-fired TPP cycle of the power of 320 + 450MW,
 - ▣ anticipated annual generation 5 TWh;
 - ▣ anticipated investment value €450 million
- Modernization project of the existing oil-fired power station in Urinj of 320 MW and construction of a new modern gas block of the power of about 450 MW in a combined cycle. The consideration of the options for the most acceptable technological solution for replacement plan is underway.
- **Status of the project:**
 - ▣ anticipated beginning of the project is the first half of 2012;
 - ▣ completion of the strategic assessment of the environmental impact by the end of 2013;
 - ▣ obtaining the location permit in the first half of 2014 and obtaining of the building permit is anticipated for the end of 2014;
 - ▣ HEP plans to invite tenders for strategic partner selection in the proportion 50:50 (strategic partner should provide liquefied natural gas supply)
 - ▣ the anticipated duration of construction is 2 years upon the issuing of the location permit and selection of strategic partner
 - ▣ the planned realization of the project is early in 2017

INVESTMENT OPPORTUNITIES

HPP KOSINJ - HYDRO POWER PROJECT ON THE RIVERS LIKA AND GACKA

- Hydro power project consists of a rehabilitation of hydro power plants Sklope and Senj, construction of new hydro power plants Senj 2 and Kosinj:
- *Power plant KOSINJ - NEW:*
 - *Installed capacity: 52 MW*
 - *Electricity production: 48 GWh*
- *Power plant SKLOPE*
 - *Installed capacity: 27 MW*
 - *Electricity production: 68 GWh*
- *Power plant SENJ*
 - *Installed capacity: 240 MW*
 - *Electricity production: 576 GWh*
- *Power plant SENJ 2 - NEW:*
 - *Installed capacity: 360 MW*
 - *Electricity production: 864 GWh*
- Total planned electricity production is 1,6 TWh.
- The system is flexible, enabling mainly production in peak hours.
- Estimated investment is 650 million €.
- HEP is interested in loan financing of the project.



HPP KOSINJ – CURENT STATUS

- Project documentation completed;
- Strategic assessment of environmental impact is in process
- HEP will announce the tender for strategic partner (50:50)
- Beginning of construction in 2013
- Estimated completion of construction - 2019.g.

CCGT EL-TO ZAGREB

□ Basic characteristics:

- Co-generation of gas-fired power station and heating plant of the installed power of 110 MW of electric and 120 MW of thermal power;
- anticipated annual generation of 700GWh of electric + 400GWh of thermal power;
- anticipated investment value €120 million.

- The project of combined gas-fired cogeneration plant on the location EL-TO Zagreb is anticipated as a replacement block for the existing plants that are at the expiration of the lifetime.

□ Status of the project:

- the beginning of the project's realization is anticipated for the first half of 2012;
- the beginning of the Strategic assessment of the environmental impact is anticipated for the second half of 2012;
- the anticipated obtaining of the location permit in 2013
- estimated total duration of the construction is 4 years (2 years upon the location permit issuing – a similar facility already exists on the location TE-TO Zagreb CCGT block L).

DUBROVNIK 2

□ **Basic characteristics:**

- the additional two aggregates in the existing power station of the joint power of 300 MW;
- anticipated annual electric power generation 320 GWh;
- estimated investment value €80 million (in the Republic of Croatia)

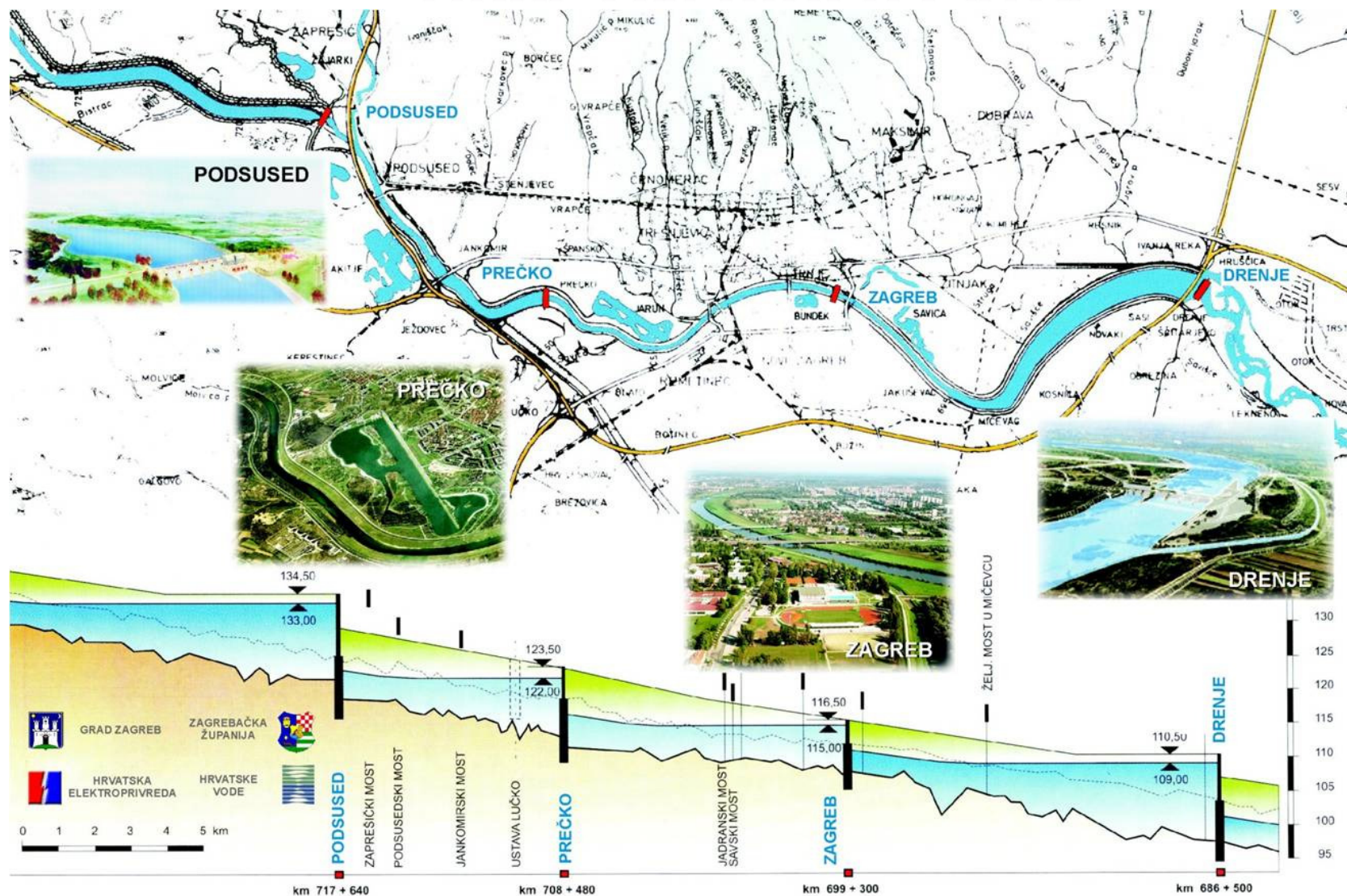
- HPP Dubrovnik 1 and HPP Dubrovnik 2 are the last ones in the series of electric power stations using the Bileća storage reservoir. Project anticipates the construction of new supply and drainage tunnels, water chamber, pressure pipelines' closure and aggregate of the power of 2x150 MW. An essential characteristic of this electric power station is the possibility of work in peak regime (the share of the generated peak energy is increased from 5% to 35%)

□ **Status of the project:**

- Strategic assessment of the environmental impact needs to be supplemented (public discussion was implemented according to the Espoo Convention)
- duration of preparation for construction in the Republic of Croatia is estimated to 12 months;
- anticipated completion of the project in 4-5 years (depending on administrative procedures in B&H)

INVESTMENT OPPORTUNITIES

HPPS ON RIVER SAVA



MULTIPURPOSE SOLUTION FOR THE REGULATION AND USE OF THE SAVA RIVER IN ZAGREB AREA

- ◆ Main goals and benefits are:
 - ❖ flooding hazard protection for more than 3000 ha of Sava banks;
 - ❖ desired water level insurance;
 - ❖ regulation of water-bed and river-bank aquifer;
 - ❖ drinking water supply for Zagreb and region;
 - ❖ improvement and protection of well fields;
 - ❖ defining Croatian-Slovenian water convention;
 - ❖ hydro energy usage for supply of electrical energy
- ◆ Technical solution consists out of 4 main electricity production objects: Installed capacity of total 120 MW:
 - ❖ **Podsused 41 MW,**
 - ❖ **Prečko 23 MW,**
 - ❖ **Zagreb 19 MW,**
 - ❖ **Drenje 39 MW.**
- ◆ Annually provides about 610 GWh, which makes about 23% of Zagreb energy consumption.
- ◆ **Stakeholders: Zagreb County, City of Zagreb, Croatian waters, HEP;**
- ◆ **Looking for potential investors – whole project worth over 0,8 billion €**

MULTIPURPOSE SOLUTION FOR THE REGULATION AND USE OF THE SAVA RIVER IN ZAGREB AREA – CURRENT STATUS

- Update of the project necessary; new environment impact assessment needed because the area is now embraced with Natura 2000
- estimated project development time – 2 years
- Estimated construction time 5 – 9 years, depending on the construction model (phases or parallel)
- PPP possible

MULTIPURPOSE HPPS MOLVE 1 AND MOLVE 2

□ Molve 1 and Molve 2 are multipurpose hydro technical structures in the Drava River basin situated in northern Croatia.

- ▣ ***Installed capacity: 50 MW each***
- ▣ ***The average annual electricity production of both HPPs in run-of-river mode is 500 GWh.***
- ▣ ***Investment value: 350 million €***

- The main purposes of the project are :
- ▣ riverbed stabilization, water flow regulation, flood control, electricity production from a RES, improvement of agricultural production, potable water supply, construction of roads, recreation and tourism, historical heritage protection and revitalization, new employment opportunities.

Project status:

- Feasibility study and the environment impact study needed (location is under Natura 2000 network)
- HEP is planning to announce the tender for strategic partnership (50:50)



BE-TO VELIKA GORICA

- The biomass PP Velika Gorica – located 16 km to south from Zagreb
 - ▣ Estimated installed capacity - 20 MWe_{el} and 35 MW_{th}.
 - ▣ Total value of the project – 68 million €
 - ▣ The opportunities of the location - good traffic connections, vicinity of grid connection and existing heat consumers. Generated thermal energy will be used for heating the city of Velika Gorica.
 - ▣ Technology used - CFB. The infrastructure for district heating already exists but it is necessary to make interconnection to heat network. Grid connection is possible on existing substation Velika Gorica (110/10 kV).
 - ▣ Necessary forest biomass (190.000 t/year) available from radius of 50 km.

OPS PROJECTS

□ Dubrovnik Program

- Construction of TS Plat 220/110/35/20(10) kV Plat, besetting of all lines and introduction of all lines into the Dubrovnik HPS. Works are underway and the anticipated termination is the 2nd quarter of 2013.
- Estimated total investment amounts to €47 million.

□ Project of construction of TS110/10(20) kV Srd

- Construction works are in progress.
- Estimated total amount of investment is €20 million.
- Anticipated completion of the construction is 2013.



INVESTMENT OPPORTUNITIES -PPPs AND INFRASTRUCTURE-

PPP IN EDUCATIONS

Objective: to provide conditions for introduction of one-shift work in elementary and secondary schools

- 338 submitted projects / 835.000 m² of school space, an average planned value of the investment per m² of space is HRK 7,442; the investment framework for the application of the PPP model only in elementary and secondary education is about HRK 6 billion
- Reported (and available) fiscal capacity of the applicant counties and cities amounts to 15.7%, while the remaining 84.3% or HRK 5,239,119,866 the counties and cities have demanded from the State Budget-related sources.

PPP IN CULTURE

projects	description	capex (mill kn)
CROATIAN HISTORICAL MUSEUM, Zagreb	reconstruction of building - ex Tobacco Factory Zagreb	90
CROATIAN STATE ARCHIVE, Zagreb	building of new archive depositary	130
MUSEUM OF CROATIAN ARCHAEOLOGICAL MONUMENTS, Split	reconstruction and realisation of new collection	43
VILLA ZAGORJE - RESIDENCE OF TITO, Kumrovec	revitalisation of three objects and parks (museum and turist contents)	10
MODERN AND CONTEMPORARY ART MUSEUM, Rijeka	renovation and reallocation of factory complex Rikard Benčić	240
CITY LIBRARY, Rijeka	construction of new building	150
YOUTH CENTRE, Split	construction	70
ex SYNAGOUGUE, Varaždin	reconstruction and annex for art gallery	7
MUSEUM and HISTORICAL PARK, Krapina	reconstructon of old building	50
NEW OPERA, Zagreb	construction of new building	400

NEW PROJECTS – LOCAL ROAD INFRASTRUCTURE

- Increase of capital investments into maintenance of local road infrastructure
- Implementation and realization through counties' Road Authorities
 - ▣ State Budget was doubled in the past 10 years, and investments into road maintenance remained at the same level – possibility of decentralization
 - ▣ Basic transport infrastructure destroyed
- There is no need to prepare project documentation
- Short realization time
- Possibility to complete investments amounts to HRK 450 million or €60 million at annual level