

Promoting cogeneration in Serbia

International Energy Efficiency Forum, 28-30
September 2010 Astana

Ministry of Mining and Energy of the Republic of Serbia
Gojko Baletic, Independent Advisor

Content

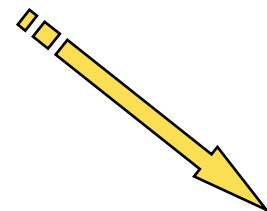
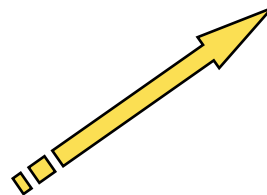
- International commitments Serbia is supposed to meet
- Basic objectives of the Program for the Development of Combined Heat and Electricity Production
- Implementation opportunities
- Incentive measures for the production of electricity from RES and combined heat and electricity production

International commitments Serbia is supposed to meet

THE LAW ON RATIFICATION OF THE TREATY ESTABLISHING ENERGY COMMUNITY

Article 100

Pursuant to the Decision of the Ministerial Council of the Energy Community No. 2009/05/MC-Enc of December 18, 2009, the area of Acquis Communautaire of the Treaty was extended by a request to implement the Directive 2006/32/EC – on energy efficiency in final consumption and energy services; Directive 2002/91/EC on energy performance of buildings and Directive 92/75/EE for household energy devices labelling. The Ministerial Council Decision determined the deadlines for the Contracting Parties to submit the Energy Efficiency Action Plans to the Energy Community Secretariat (three plans). The Republic of Serbia submitted the First Action Plan (2010-2012)



Directive 2006/32

- Definition of national framework energy savings objective
- Establishment of funds for providing subsidies for the implementation of energy efficiency programs
- Energy services market development
- Use of arrangements on third party financing-ESCO companies participation
- Informing the consumers on available measures for energy efficiency upgrade
- Submission of Energy Efficiency Action Plans

Objective

9% energy savings during 9th Directive implementation year

Directive 2002/91

- Calculation methodology for integral energy performance of buildings
- Implementation of minimum request for energy performance of buildings
- Issuance of energy certificate for buildings

Objective

Promotion of energy performance of buildings

State institutions competent for development of use of combined heat and electricity production

MINISTRY OF MINING AND ENERGY

- Development and implementation of policies for electricity and heat energy production from renewable energy sources

MINISTRY OF SCIENCE AND TECHNOLOGICAL DEVELOPMENT

- Technological development and pilot facilities design

MINISTRY OF ENVIRONMENT AND SPATIAL PLANNING

- Planning and construction of RES fuelled facilities
- Security system, sustainable development and resources usage
- Climate change monitoring and support to RES development

MINISTRY OF ECONOMY AND REGIONAL DEVELOPMENT

- Implementation of activities stimulating regional development – especially in underdeveloped areas

SERBIAN ENERGY EFFICIENCY AGENCY AND REGIONAL CENTRES

- RES use support programs
- Trainings and campaigns for raising the awareness on the importance of RES use
- Centers – Belgrade, Novi Sad, Nis, Kragujevac, Kraljevo

SUSTAINABLE DEVELOPMENT COUNCIL – DEPUTY PRIME MINISTER FOR EUROPEAN INTEGRATION

- Implementation of the activities on adoption and implementation of the Sustainable Development Strategy of the Republic of Serbia

PROVINCIAL SECRETARIAT FOR ENERGY AND MINERAL RESOURCES

- Implementation of the activities on increased use of RES on the territory of AP Vojvodina

MINISTRY OF AGRICULTURE, FORESTRY AND WATER MANAGEMENT

- Competent for the development of agriculture and forestry which represent the raw material basis for the use of biomass for energy production
- In charge of water management operations – small hydro power plants

THERE IS NO INSTITUTIONAL MECHANISM FOR THE COORDINATION OF STATE INSTITUTIONS ACTIVITIES ON COMBINED HEAT AND ELECTRICITY PRODUCTION

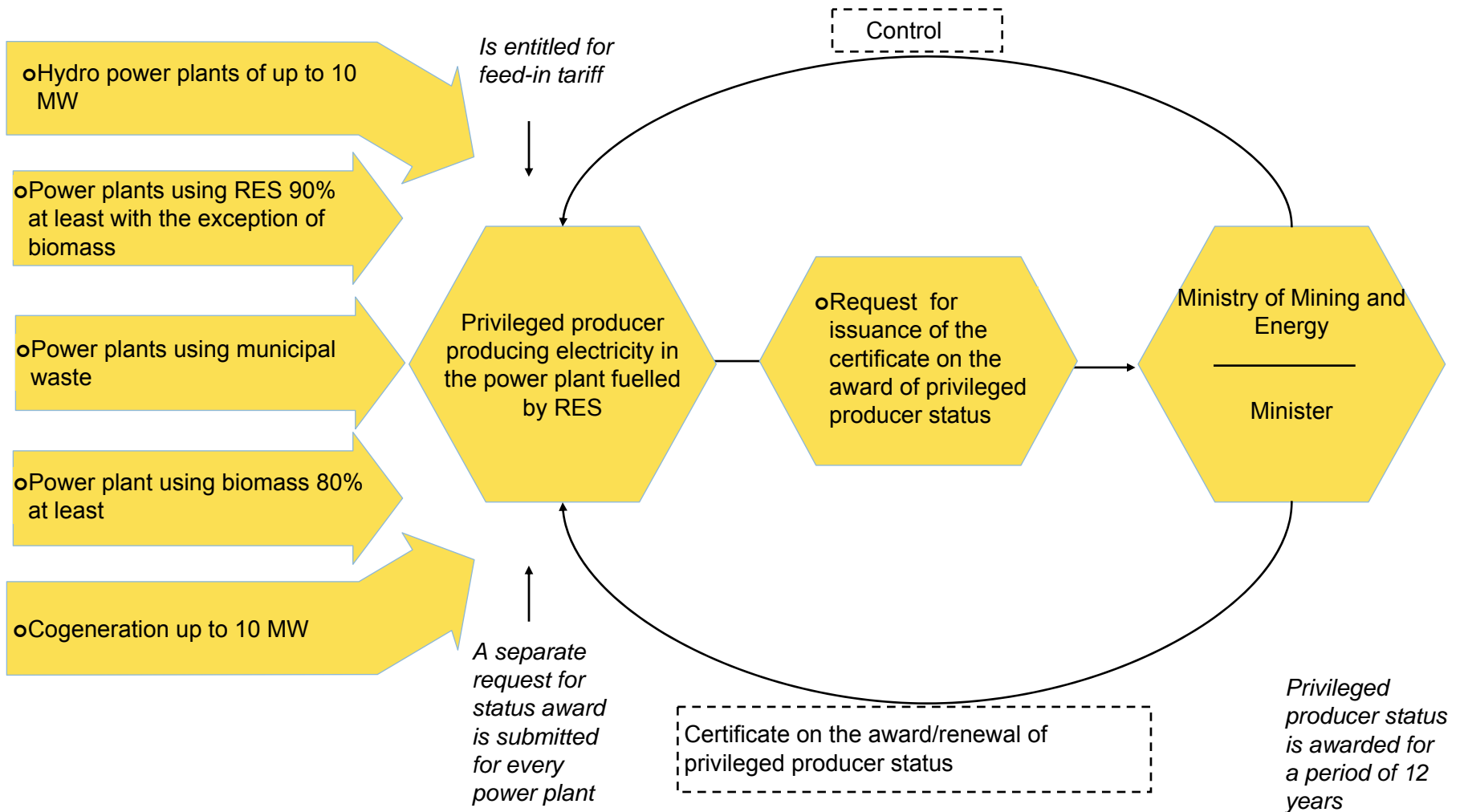
Basic objectives of the Program for the Development of Combined Heat and Electricity Production

- More efficient use of one's own potentials for energy production
- Reduction of greenhouse gases emission
- Decrease in fossil fuels import
- Local industry development
- New vacancies

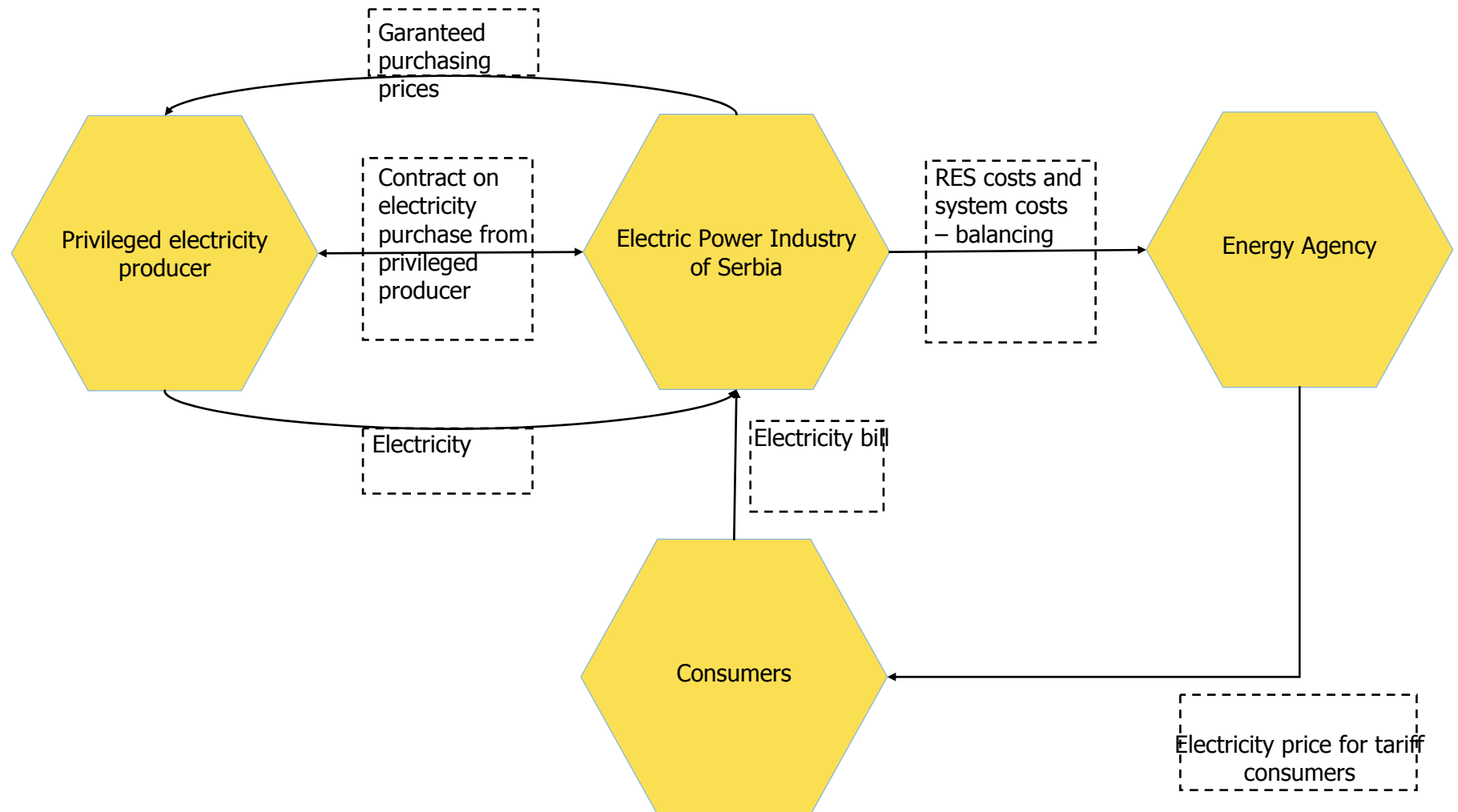
LEGAL FRAMEWORK

- Energy Law (Official Gazette RS 84/04)
- Energy Sector Development Strategy of the Republic of Serbia until 2015
- **Program for the Implementation of the Energy Sector Development Strategy of the Republic of Serbia 2007-2012 (Amendments and supplements – December 2009- Official Gazette RS 99/09; April 2010- Official Gazette RS 27/2010)**
- **Decree on Conditions for the Award of Privileged Electricity Producers and on the Criteria for Compliance with these Conditions (Official Gazette RS 99/09)**
- **Decree on Incentive Measures for Electricity Production from RES and Combined Electricity and Heat Production (Official Gazette RS 72/09)**

Decree on Conditions for the Award of Privileged Electricity Producers and on the Criteria for Compliance with these Conditions



The position of the privileged producer on the electricity market



Implementation opportunities

Industry:

- Chemical and pharmaceutical
- Paper industry
- Construction material, pottery and cement
- Breweries
- Food industry and sugar refineries
- Textile industry
- Oil refineries
- Ironworks, non-ferrous metals, minerals
- Foundries
- Metal industry
- Green houses and horticulture

Building Sector:

- Central heating
- Hotels and restaurants
- Hospitals
- Sports centers and swimming pools
- Universities and schools
- Airports
- Shopping malls
- Office and administration buildings
- Single family dwellings

Advantages of combined production use

- CHP reduces primary energy consumption considerably
- It diminishes polluting matter emission notably
- It downsizes the losses and transmission and distribution costs
- It increases the security of electricity supply
- It implies wider local industry participation than in big power plants

Incentive measures for the production of electricity from RES and combined heat and electricity production

Combined production plants

Fossil fuels

Fossil fuels
+ RES

Fossil fuels
+ waste

$$\eta = \frac{E_{kor}}{E_{pr}} \times 100[\%]$$

η - total annual efficiency rate

E_{kor} - total annual net produced energy

E_{pr} - total annual consumed primary energy

Installed capacity (MWe)	Fossil fuel share in consumed fuel energy value (%)			
	(20-40)%	(40-60)%	(60-80)%	(80-100)%
<1	45%	50%	55%	60%
1-10	55%	60%	65%	70%

Incentive measures for the production of electricity from RES and combined heat and electricity production

CHPs fuelled by fossil fuels

$\leq 0,2 \text{ MW}$

$> 0,2 \text{ MW} \leq 2 \text{ MW}$

$\leq 10 \text{ MW}$

$C_0 = 10,4$

$C_0 = 10,667 - 1,333 * P$

$C_0 = 8,2$

Within existing infrastructure of up to

$C_0 = 7,6$

P- installed capacity of the power plant

Incentive measures for the production of electricity from RES and combined heat and electricity production

Purchasing price correction for the CHPs fuelled by natural gas

$$C = C_0 * (0,7 * G / 27,83 + 0,3)$$

C – new purchasing electricity price

C₀ – referential purchasing price determined based on the selling price of natural gas sold to the energy entities which manage natural gas retail business, providing gas to tariff consumers. The price does not include the costs proscribed for the use of natural gas transport system which are charged by Public Enterprise “Srbijagas” Novi Sad under tariff item “energy carrier” of 27,83 RSD/m³

G (RSD/m³) – new price of natural gas to be sold to the energy entities which manage natural gas retail business, providing gas to tariff customers. The price does not include the costs proscribed for the use of natural gas transport system which are charged by Public Enterprise “Srbijagas” Novi Sad under tariff item “energy carrier” of 27,83 RSD/m³

Other sources for electricity production; Their use is stimulated

- Small hydro power plants – hydro power plants with up to 10 MW capacity
- Biomass – biodegradable matter originating from agriculture, forestry and households which includes: plants and plant fragments, fuel produced from plants, residue from agricultural production (stalks, straw, branches, kernels, shell), residue from forestry, manure
- Biogas – gas produced from anaerobic processes from biomass i.e. from agricultural residue production
- Landfill gas – gas from municipal landfills or from municipal water treatment plants
- Wind energy
- Solar energy
- Geothermal energy

Purchasing electricity price from these sources amounts to
5,9 €cent – 23 €cent

Energy licence issuance

Energy Law (Official Gazette RS 84/04) – Article 27

Energy licence is obligatory for the construction and reconstruction of facilities for electricity production for capacities **over 1 MW – issued by the Ministry of Mining and Energy**

Construction licences are issued by the local administration for facilities with installed capacity of **up to 1 MW** (small hydro power plants, biogas fuelled power plants, solar power plants, landfill gas fuelled power plants, biomass fuelled power plants)

The amendments to the Rulebook for Energy Licences Issuance – location permit is submitted instead of the document on zoning conditions

Thank you for your attention

Gojko Baletic
Independent Advisor
36, St Kralja Milana
11000 Belgrade
gojko.baletic@mre.gov.rs