



FEED-IN TARIFF A NEW TYPE OF INVESTMENT INCENTIVES IN ENVIRONMENTAL PROTECTION IN SERBIA

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The goals of sustainability in the energy sector in the XXI century

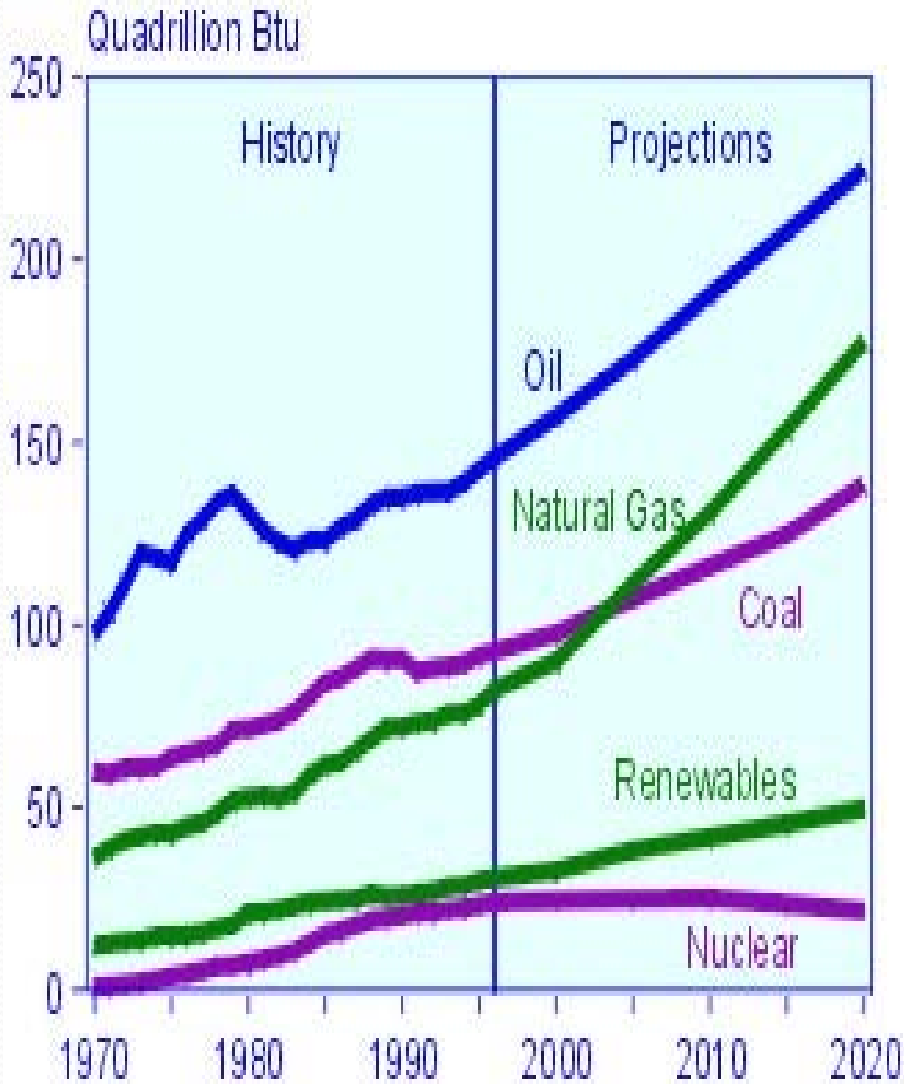
Accessibility - energy must be available at prices that are affordable for poor people, but also enable the production, transformation and distribution, and provide a basis for further development of energy systems

Availability - continuous supply of energy in the long period of time

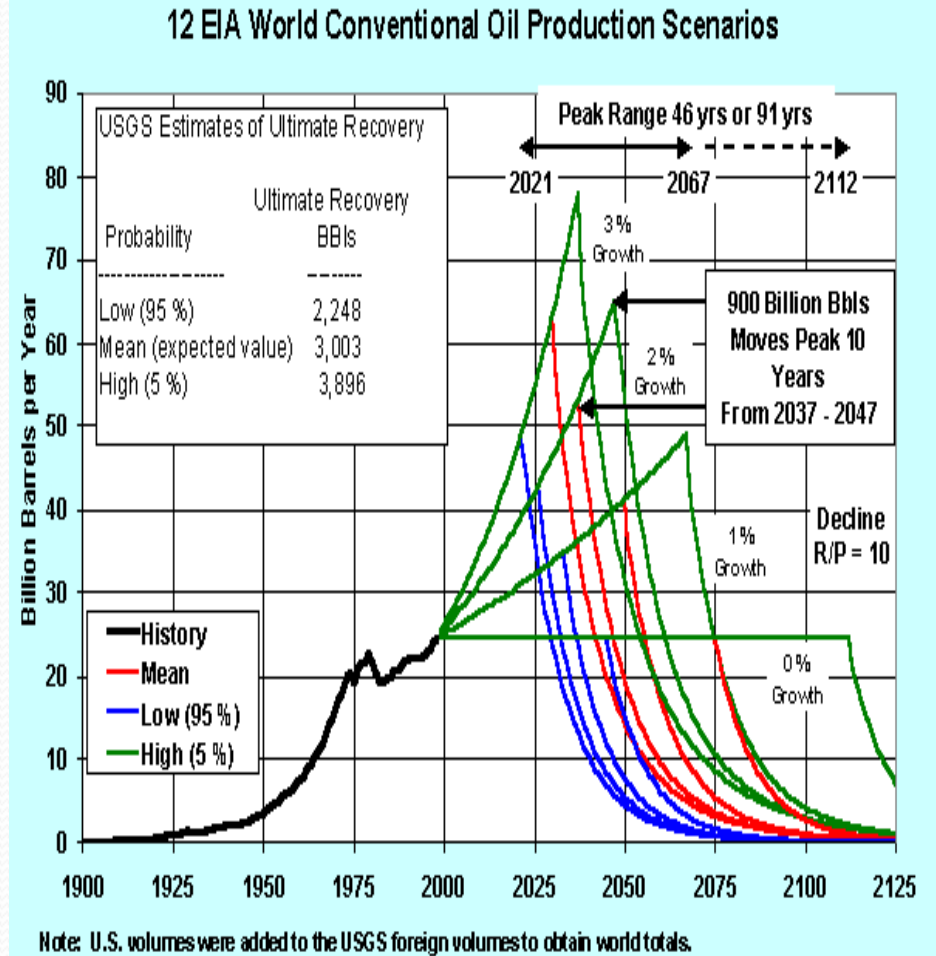
Acceptability - Conformity of general social goals and environmental objectives (disappearance of forests, land degradation, the effect of greenhouse gases and nuclear safety, waste management, etc. ..)

The concept of 4E - Energy, Ecology, Economy and Efficiency

Energy consumption – World



Oil consumption – World



INTRODUCING INCENTIVE MEASURES :

- 1 .Assumed obligations - The Energy Community of Southeast Europe with the EU DIRECTIVE ON RENEWABLE ENERGY SOURCES
- 2 .Kyoto protocol

Effects:

- environmental protection
 - reduction of dependence on imported fossil fuels
 - regional development
 - development of domestic manufacturers of certain technologies
- OIE

TYPES OF INCENTIVES:

- feed in tariff or quota system**
- dedicated funds**
- fiscal measures**
- soft credit lines**

Variants of incentive purchase rates (Feed-in tariff)

Different rates by technology

Incentive: The total purchase price or addition to the market price

Different prices for the day periods of the base and peak load electrical network and depending on the time of the year

Period of validity of the purchase price (minimum 12 years to over 25 in Spain)

Fixed price for (12) years, or alignment of any (1 or 2) years

Dependence of the purchase price on the share of domestic

The existing power plant on OIE and incentives (everyone makes a difference)

Ownership of the power plant and incentive measures (Germany: not for the state)

Basis for determining **incentives** of purchase price:

- approximate lower limit of incentives purchase price: prices in the European market base for future production (2009. and 2010.) is min. 6.9 c € / kWh.

COMMON ECONOMIC PARAMETERS :

net gain of 12 year operation (invest. + operating)	year of investment:
10% discount rate	operating life (years):

- **The discount rate** (engl. discount rate, bank rate, nem. Diskontsatz) is discount rate, a measure of the time value of money, or reducing the future amount of money or profit to the current value.
- A typical value about 10%

METHODS OF INTERNAL RATE OF RETURN(IRR)

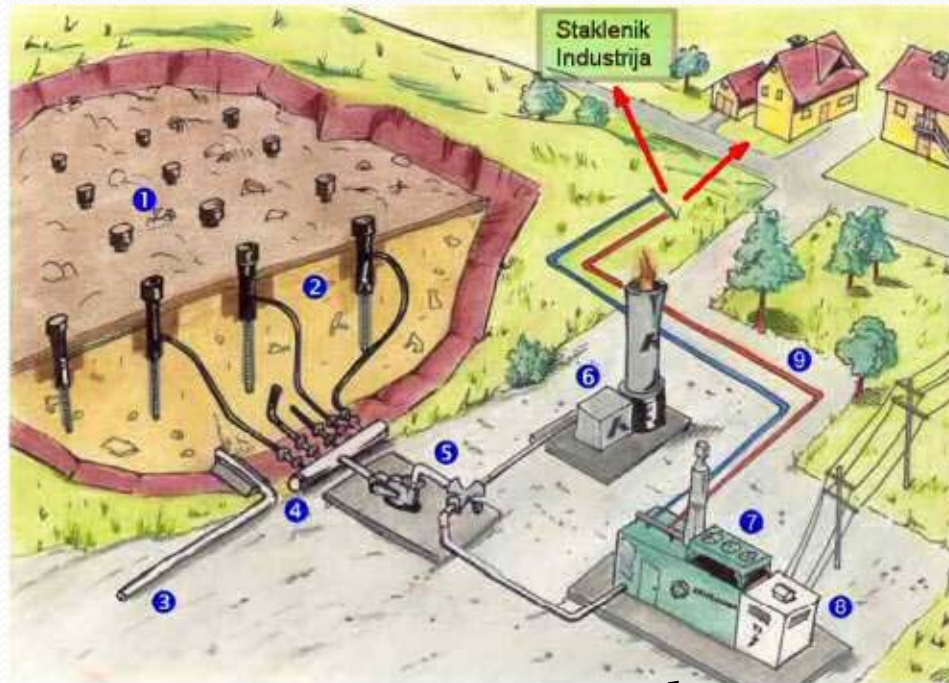
The IRR (International Rate of Return) method takes into account the size and timing of expected cash flow in a certain period of life cycle of the project. IRR for proposed investment is the one discount rate that equates the present value of expected costs to the present value of expected revenue. If IRR is greater than the applicable discount rate, the proposal is accepted, if not, the proposal is rejected.

B- Revenue

C-Costs

DEPONIJSKI GAS

- The plant is being built on a landfill or next to it ⇒ lower investment
- Investors: local government or private investors.



Legend:

1. Landfill, 2. Gas wells, 3. Leachate collection, 4. Gas collector, 5. vacuum pump, 6. High temperature flare, 7. Co-generation engine, 8. Transformer station, 9. Heating

LANDFILL GAS

Investments (€/kW)	2000 - 2100
Number of work hours (h/year)	6500
Operating costs and maintenance (%)	7,4 - 5,0
Operating life (years)	25
Price (c€/kWh)	6,7

THE RIGHTS OF INVESTORS

The investor has to acquire the following rights :

- I The right to build
- II The right to conduct production of electric / heat

LEGISLATION-OIE projects

- Law on construction planning (“official Gazette of Republic of Serbia“, No. 72/2009)**
- Law on Energy("official Gazette of Republic of Serbia", No. 57/2011)**
- Law on Environmental Protection("official Gazette of Republic of Serbia", No. 135/04 i 36/09)**
- Law on Integrated Prevention and Control of Environmental Pollution (" official Gazette of Republic of Serbia ", No.135/04)**
- Law on Waste Management (" official Gazette of Republic of Serbia ", No. 36/09 i 88/10)**
- Impact Assessment Act on Environment (" official Gazette of Republic of Serbia ", No. 135/04 i 36/09)**
- Law on Safety and Health at Work (" official Gazette of Republic of Serbia ", No. 101/2005).**
- Law on Fire Protection (official Gazette of Republic of Serbia 111/2009)**
- Water Act (“official Gazette of Republic of Serbia” No. 30/10)**
- Law on Concessions (“official Gazette of Republic of Serbia” No. 55/03)**
- Law on Public Enterprises and Performance of Common Interest (“official Gazette of Republic of Serbia” No. 25/00, 25/02, 107/05 i 108/05)**
- Law on Communal Activities (“official Gazette of Republic of Serbia” No. 16/97 i 42/98)**

REALIZATION OF THE PROJECT OIE

- Spatial planning requirements for building in accordance with Law on planning and construction-Information about the location**
- Previous conditions and reviews of the Ministry of Water and authorized electric power distribution agreement**
 - Energy permit (Law on Energy) - not necessary for the power facilities under 1 MW**
 - Environmental impact assessment (Impact Assessment Act on Environment)**
- Water requirements (Ministry of Water Management)**
- Location Permit (Conceptual design)**
- The main project (technical control)**
- Construction permit**
- Commencement of works**
- The construction of facilities**

- **Water management permit, integrated environmental permits and other statutory approvals**
- **Use Permit**
- **Status of privileged producer**
- **The contract of sale of electricity (with the competent Electrical Distribution)**
- **Start of energy delivery**

PROJECT FINANCE – FINANCING METHODS

- **Own funding if there are opportunities**
- **International creditors (World Bank, GEF, IFC)**
- **International and regional banks(KfW,ADB, AfDB,EBRD,European bank)**
- **intergovernmental organizations(GTZ-Germany, US AID-U.S.A.)**
- **State funding**
 1. **Development Fund**
 2. **Environmental Protection Fund**
 3. **Local funds for the environment**
 4. **Development Bank of Vojvodina**
- **Private banks and institutions**
- **Joint Venture investment**
- **Investment Funds**

PROJECT RISKS

General :

- Poor evaluation of the potential locations
- Poor choice of technology
- Poor project management and operation of the installation
- Inability of thermal energy placement

SPECIFIC RISKS-SERBIA

The risk with a change in the legal framework and lack of regulations -PPP	Change of feed in tariffs, taxes, unclean property-legal relations, strict application of EU directives
low energy prices and the existence of monopoly	social policy with the price of energy and maintain a dominant position in certain systems
The risk with the currency	devaluation of currency
The risk of interest rate	Increasing interest rates
Inflation	The increase in inflation

SCENARIO to 2018 OIE:

The aim of the Republic of Serbia is to increase share of electricity produced from renewable sources by 2.2% by the end of 2012. Compared to the total national consumption of electricity in 2007.

-AROUND 500MW of the installed power to 2018.

-LANDFILL GAS TO 20MW

-INCREASE IN PRICES OF EL. ENERGY 5,4% TO 2018

-PLANNED GROWTH OF PRICES EL. Energy 3,5% PER YEAR

DIRECTIVE 2009/28/EC ON RENEWABLE ENERGY SOURCES

- BINDING OIE SHARE IN THE GROSS ENERGY CONSUMPTION**
- BINDING SHARE OIE IN THE TRANSPORT SECTOR**

**NATIONAL ACTION PLAN FOR RENEWABLE ENERGY-A WAY
TO ACOMPLISH OBJECTIVES**

NEW ENERGY LAW

- The government provides incentive measures for the production of electricity using renewable energy sources and purchase of energy depending on the type and power of plants, prescribe the price at which electricity is purchased from the preferred manufacturer, the period of validity of the purchase price and electricity duties, obligations with regard to balancing responsibilities, content and duration of pre-contract and contract for the purchase of electricity from producers and preferred method of calculation of incentive fees and allocation of funds on that basis.
- The incentive funds are provided by end users by paying special incentive fees which is paid with the bill for access to transmission and distribution system and are separately
- Government following the proposal of the Ministry by the end of December in each year determines the amount for next year
- Issuing guarantees of origin
- After 12 years of feed in tariff – free market access and export opportunities

THANK YOU

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