



Energy and and more



**PROJECT
FINANCE INTERNATIONAL**



**Energy Efficiency – GTZ Conference
Financing Issues
Budva, April 28th , 2010
Dr. Joachim Richter**

Worldwide Challenges for the Energy Infrastructure



Need for more energy



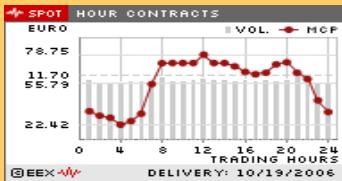
Urbanization



Scarcity of natural resources



Environmental awareness



Open markets



Highly efficient and clean fossil fuel power plants



Increased use of distributed and renewable energy resources.



Bulk power transmission over long distances



Distribution within congested areas / mega cities.



More efficient, reliable and secure grids

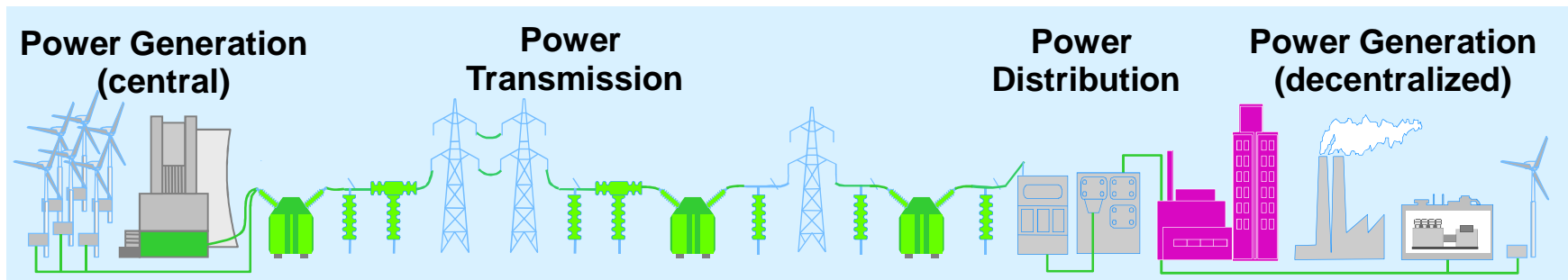
Energy Efficiency – The Facts

75 % of world wide energy consumption is allocated to urban areas

80 % of world wide CO2 emissions are allocated to urban areas

Urban areas are “The Target” for energy efficiency measures

From Generation to Consumption The Fields of Intervention



Demand for increase in energy efficiency means

- Implementation of state-of-the-art power generation systems including renewables
- To balance power generation and consumption (Virtual Accounting Grid)

Demand for reliable and efficient grids (large/small scale) leads to

- financing requirements
- consideration of “interoperability” between public donors and private investors

Energy Efficiency

WHY are we here?

- **The stakeholder`s engagement in energy efficiency issues**
- **We have to balance economic growth and energy “stress”**
- **Solution: “low carbon growth”**
- **Requirements for innovative public and private financing schemes**
- **Innovative Contracting models**
- **CO2 emission certificate trading – CDM mechanism**

Financing Options

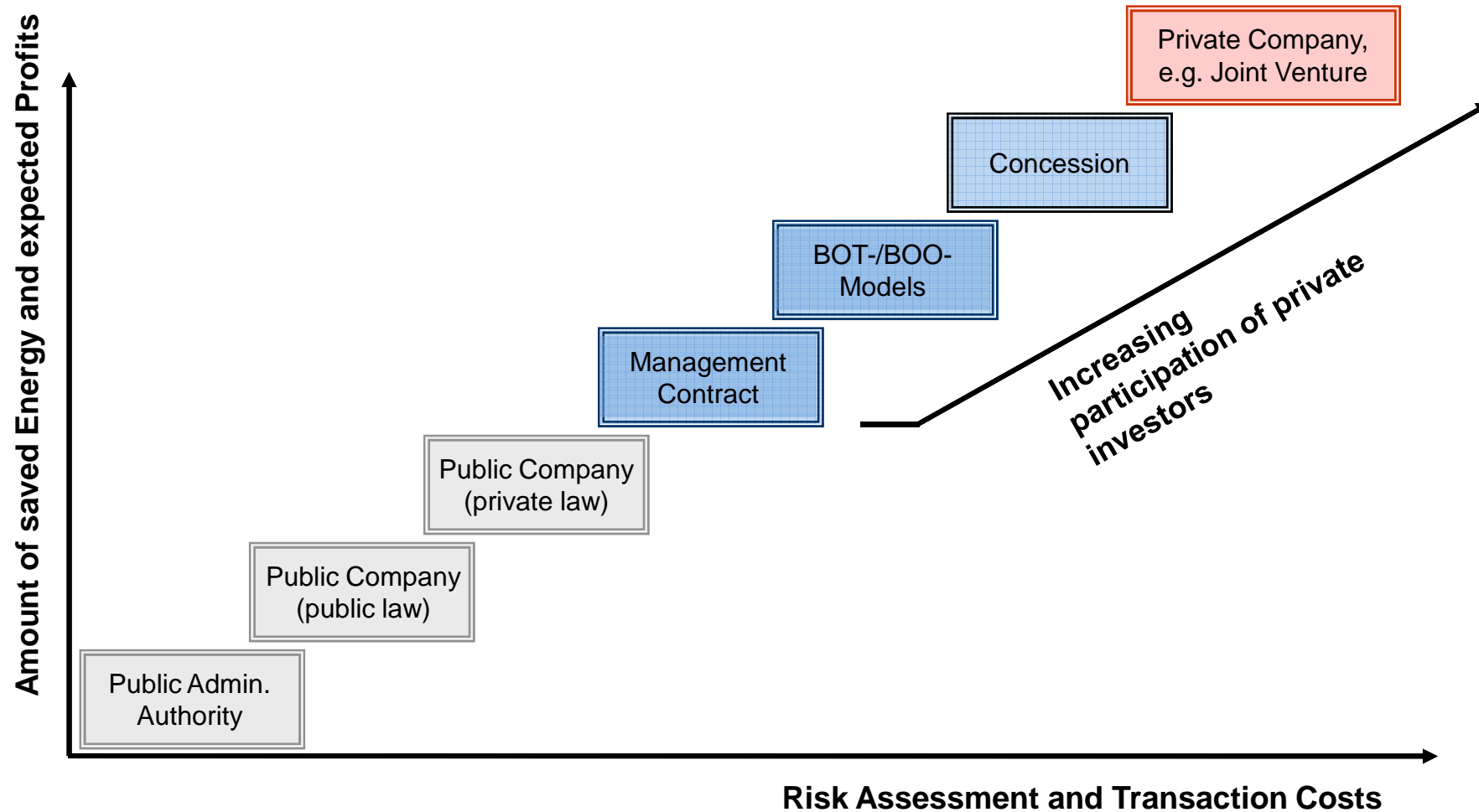
Efficient use of energy in **public** consumption

- Reduced consumption in public/urban lighting
- Energy generation in waste water treatment plants

Efficient use of energy in **private** consumption

- only who measures consumption can reduce consumption
- Metering is the crucial issue

Options of Private Sector Participation



Financing Options

- **Private sector engagement requires stable business environment**
- **Waste Water Treatment Plant – Sludge Digestion
Block Heating Power Plant
Power Generation
Sewerage treatment gas processing and feeding into
natural gas network**
- **The Combined Cycle Plant could be “out-contracted” and operated and “partly” financed with private equity**
- **Renewable Energy Law guarantees subsidized tariffs**

Financing Options

- **The public lighting could be transferred to private investors**
- **Installation of low energy saving lamps**
- **Financing of the investment partly out of energy saving**
- **Partly out of emission certificate trading**
- **Perfect example for PPP model**

Financing Options

- **The roofs from big public buildings could be leased to private investors**
- **Installation of solar panels for power generation**
- **Perfect example for PPP model**
- **Renewable Energy Law guarantees subsidized tariffs**

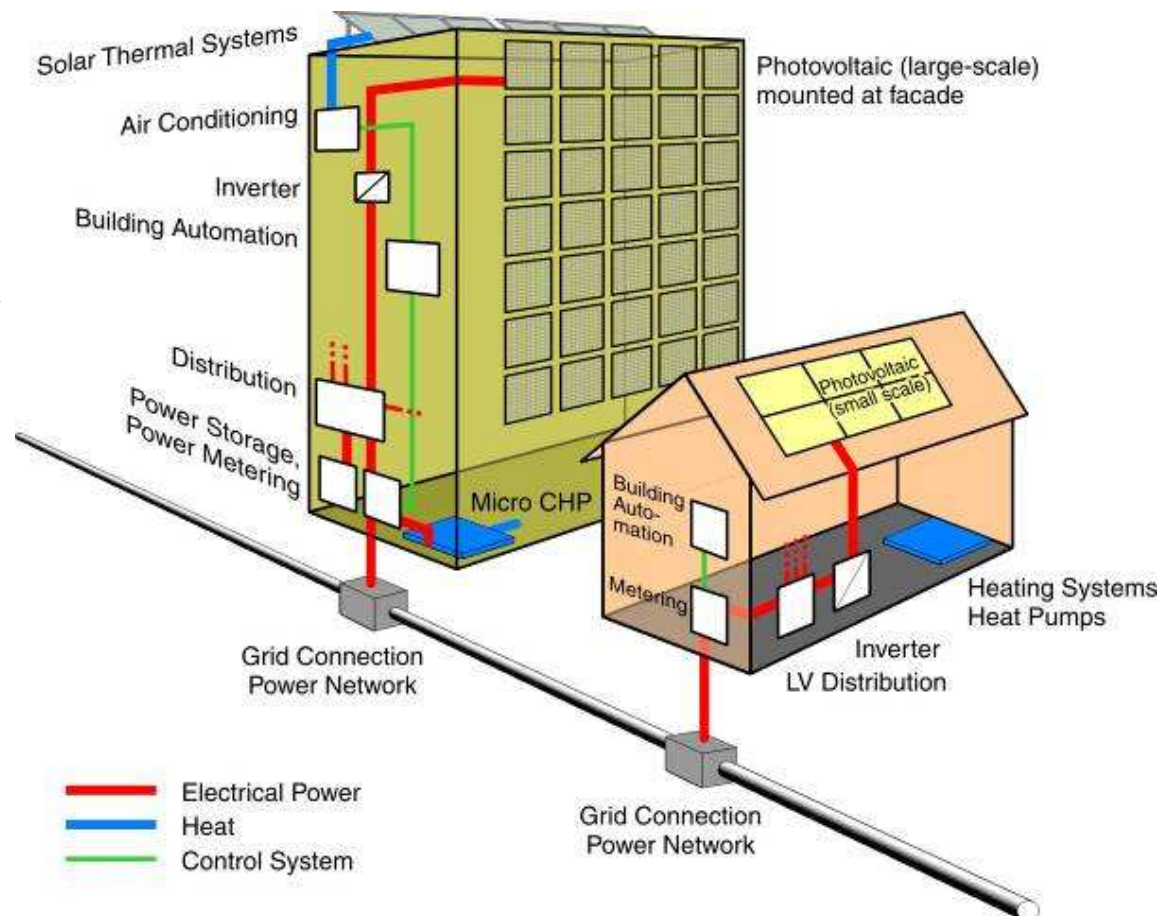
Integration of Renewable Energy Resources: Solar Power in LV/MV Grid

Driving Forces:

- Demand for increase in energy efficiency
- Balancing of power demand and power supply
- Increase of reliability in grid operations

Task:

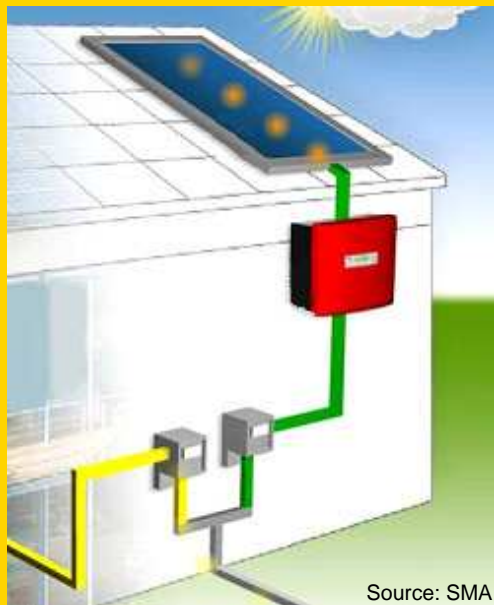
- Management of Complex System



Integration of Renewable Energy Resources

Grid Connected Systems

Solar electricity is fed into the public grid
⇒ **wherever a grid is available**



Micro Grid Systems

Supply for a few homes up to villages, solar or hybrid systems possible
⇒ **full electricity supply for rural areas**

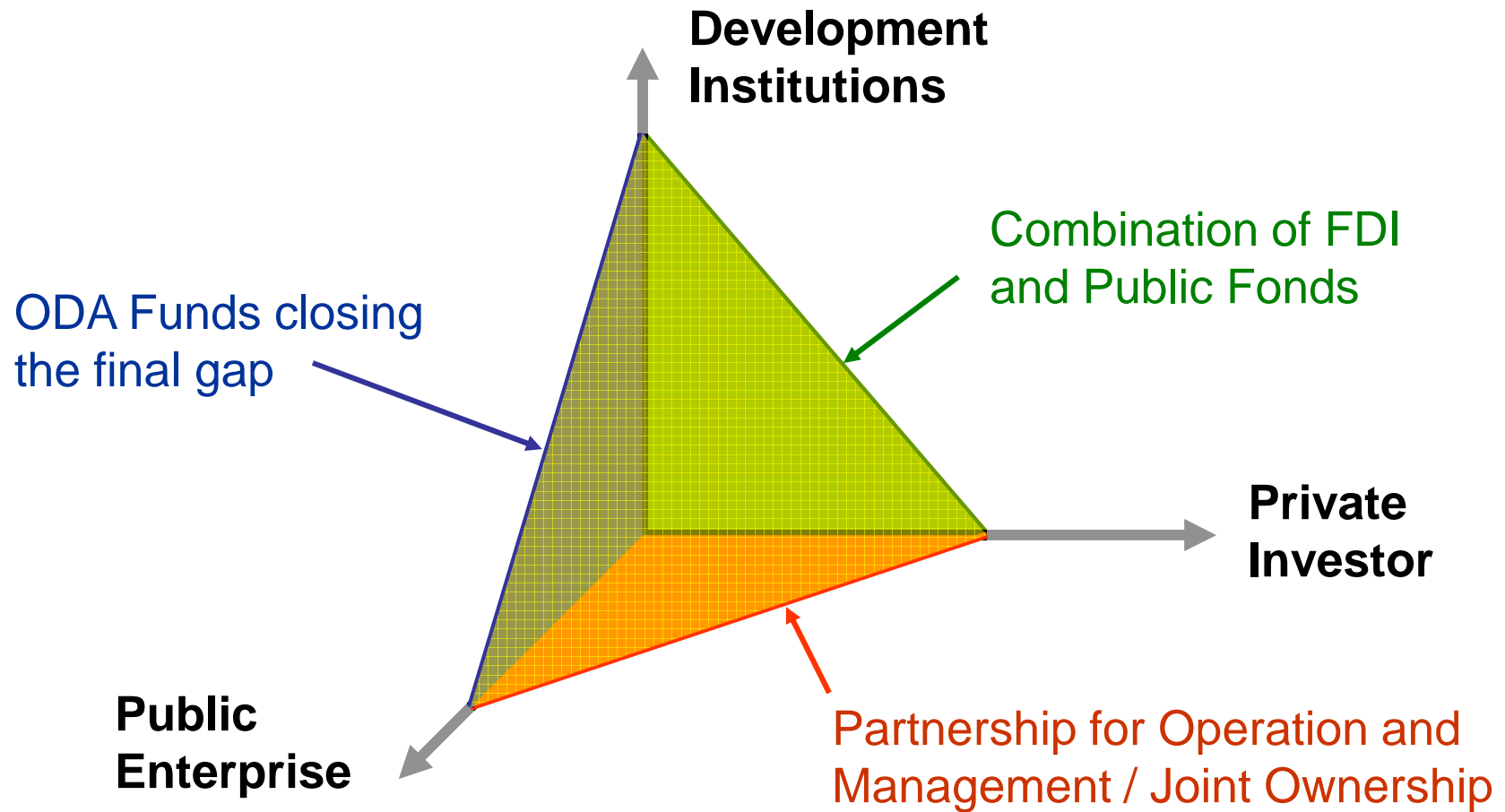


Solar Home Systems

Supply for single buildings to cover basic needs: communication, education
⇒ **basic needs for single buildings**



PPP – A three dimensional approach



Financing Options

Bilateral and multilateral donors:

- **World Bank and Regional Development Banks are well prepared to finance**
- **Infrastructure initiatives**
- **Climate Investment Funds**
- **Clean Technology Fund**

These institutions are not affected by the international finance tsunami.

MDB Project Cycle

- **Consensus between Donor Organisation and Recipient Country**
- **Application Principle**
- **Public Sector Projects**
- **Issuance of Application Documents**
- **Multi Year Lending Programme**
- **Establishing of Implementing Unit and Executing Agency**

Guidelines for Project Application

REQUEST for Investment Loan

- 1. Explanation of the need for the project investment**
 - **Description of the current situation (including problem analysis)**
 - **Explanation of need for the project implementation**
 - **Relationship with other projects that are or will be financed by other donors**

- 2. Description of the Requesting Party's Institution in connection with the project**
 - **Experience of the PIU / Executing Agency**
 - **CV's of the key personal**

Guidelines for Project Application

- 3. Description of the requested project structure**
 - **Goal(s) of the investment engagement**
 - **Desired outcomes and efforts required to achieve them**
- 4. Preparation and Implementation of the Project**
 - **Preparation and planning status**
 - **Implementation and realisation approach**
 - **Implementation schedule
(including consulting cost estimates by day)**
 - **Costs and financing
(including the contribution of the requesting party)**
- 5. Risks for Project Implementation**
 - **SWAT Analysis**



The German Electrical and Electronics Industry

- **Germany is the leading producer of energy efficient and energy saving technologies**
- **We offer knowledge for the transmission & distribution of energy and the optimisation of existing systems**
- **The German manufacturers are looking forward to detailed discussions**

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in the Emerging Markets



Many thanks for your interest