



UNIVERSITY OF PRISHTINA "HASAN PRISHTINA"
FACULTY OF ELECTRICAL AND COMPUTER ENGINEERING
PRISHTINA,
REPUBLIC OF KOSOVA

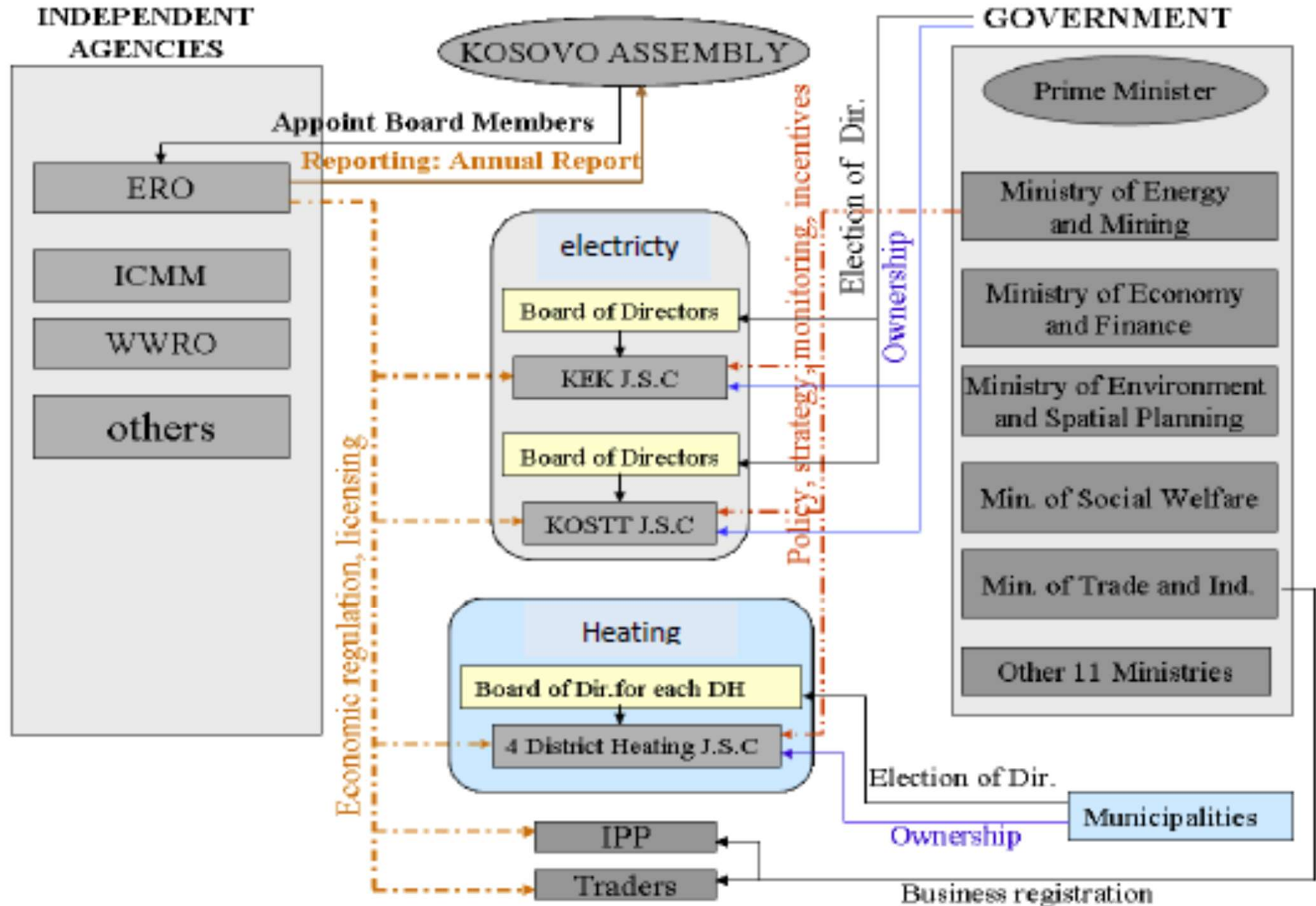
Hydropower and its future role
Istanbul Technical University
21 – 22 January 2016
case
KOSOVO

On Behalf of Kosovo Team
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Kosovo is member of EnC of SEE



Main actors in Kosovo energy sector



Renewable Energy Sources (RES)

Legal Framework Policy and market

- The market reforms, and the legislative process, in the energy sector in the South East Europe is still ongoing, with energy laws and strategies awaiting adoption.
- Kosova has **promulgated** the Laws in sector of energy, 2004 and 2010, the Energy Regulatory Office is established in 2004.
- Third package is in the process of adoption in energy laws

Legal mandate of Institutions on RES - Ministry

- **Policy / Law / Monitoring**

Mandate:

- **Set indicative targets for consumption of electricity generated from RES**
- **prepare implementation programs to promote the RES;**
- **prepare proposals for incentives for use of energy from the renewable energy sources;**
- **monitor the use of RES and the realization of targets for using renewable resources;**
- **encourage energy audits and local renewable energy resources development plans;**
- **prepare secondary legislation, after consulting the Energy Regulatory Office, for which promote the use of renewable energy sources;**
- **encourage the operation of non-governmental organizations acting in the public interest in the energy sector; and**
- **promote an increase in the contribution of RES to electricity production in the internal market and regional markets for electricity in conformity with the indicative targets set by MEM.**

Legal mandate of Institutions on RES-ERO

- Construction permit/ Licensing
- Promote and stimulate
- Monitoring

Mandate:

- ▶ **Issue certificate of origin for the electricity generated from RES**
- ▶ **ensure that the transmission and distribution fees do not discriminate against electricity from renewable energy sources;**
- ▶ **ensure that tariff methodology, tariff system and in setting of tariffs the incentives to improve the development of RES are encouraged;**
- ▶ **The tariff system shall provide incentives for the promotion of the use of RES**
- ▶ **In setting tariffs, the Energy Regulatory office may provide sources of funding through tariffs, implemented by third parties selected by competitive bidding, operating under transparent procedures.**
- ▶ **Monitor that licensees (TSO, DSO, Public Supplier) are in compliance with obligations (deriving from Laws) to electricity generated from RES.**
- ▶ **Participate on consultations with MEM on their preparation of secondary legislation related to renewable energy sources**

LEGAL MANDATE OF INSTITUTIONS ON RES – PUBLIC SUPPLIER, TSO, DSO

- ▶ The public supplier shall be required to purchase at a regulated price the entire amount of electricity for which a certificate of origin (for RES) has been issued by ERO.
- ▶ TSO, when dispatching generation shall give priority to generation using renewable energy sources.
- ▶ System Operators shall establish and publish standard rules on who bears the costs of technical adoptions, such as grid connections and grid reinforcements, necessary to integrate new generators feeding electricity from renewable energy sources into the interconnected system (rules approved by ERO)

REGULATORY SUPPORT TO DEVELOPMENTS OF RES

The challenge is to identify a price that encourages renewable generators but does not represent too high a premium over the cost of conventional generators

In EU countries are used different types of direct financial support options, as:

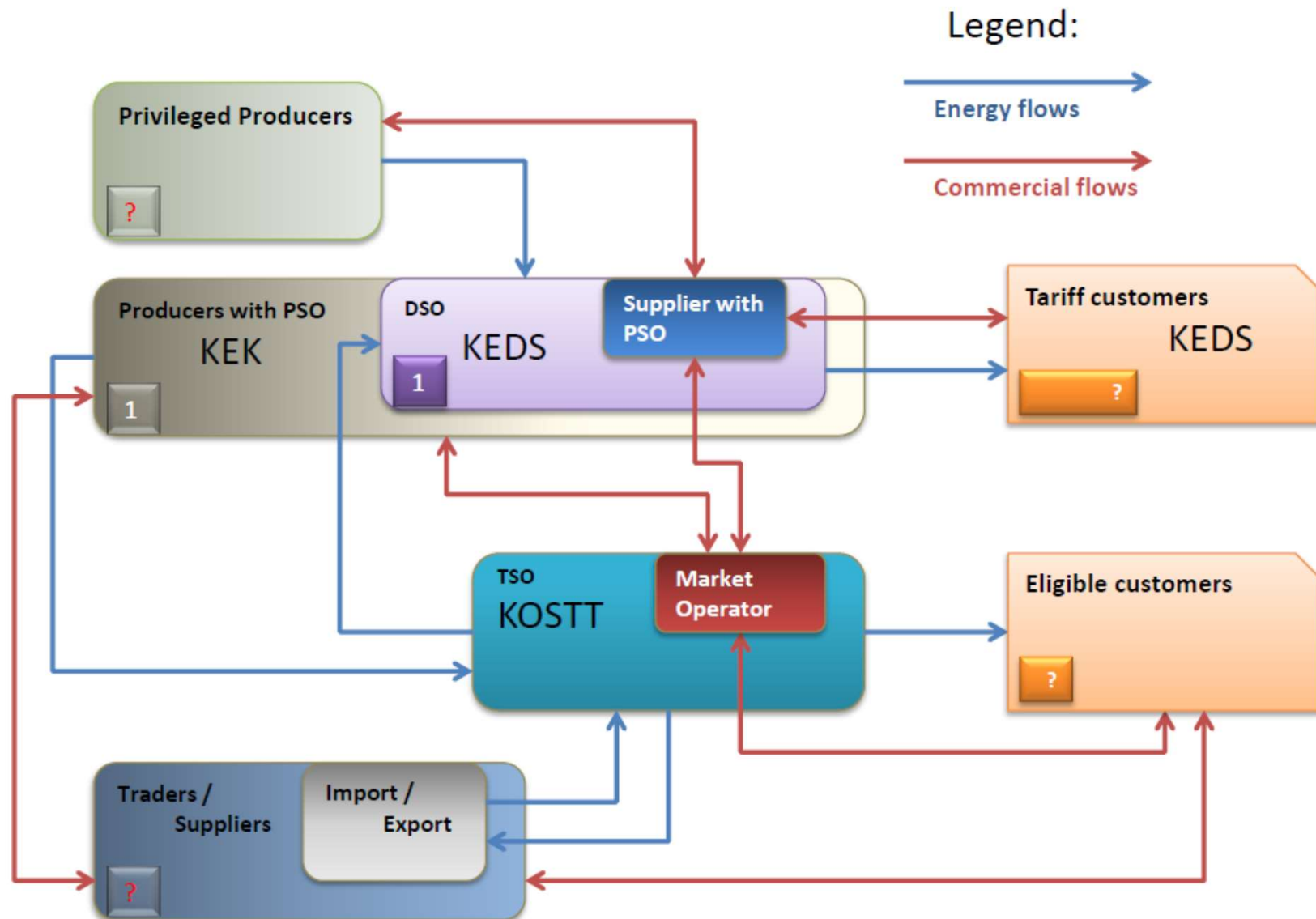
- Feed-in tariff (Kosovo)
- Competitive tender
- Production credit
- Renewable obligation with tradable renewable credits
- Tax Incentives

It should be noted that feed-in tariffs have been broadly adopted as a major tool to support renewable energy.

Regulatory Support to Developments of RES

- **The law on Electricity requires that ERO issue certificates of origin for electricity generated from RES and that the public supplier is obliged to purchase this electricity at a regulated price.**
- **Experiences of EU countries with feed-in tariff has generally been that this is successful in promoting investments in renewable generators, but has tended to lead to 'excessive' investments and large increases in cost to customers.**

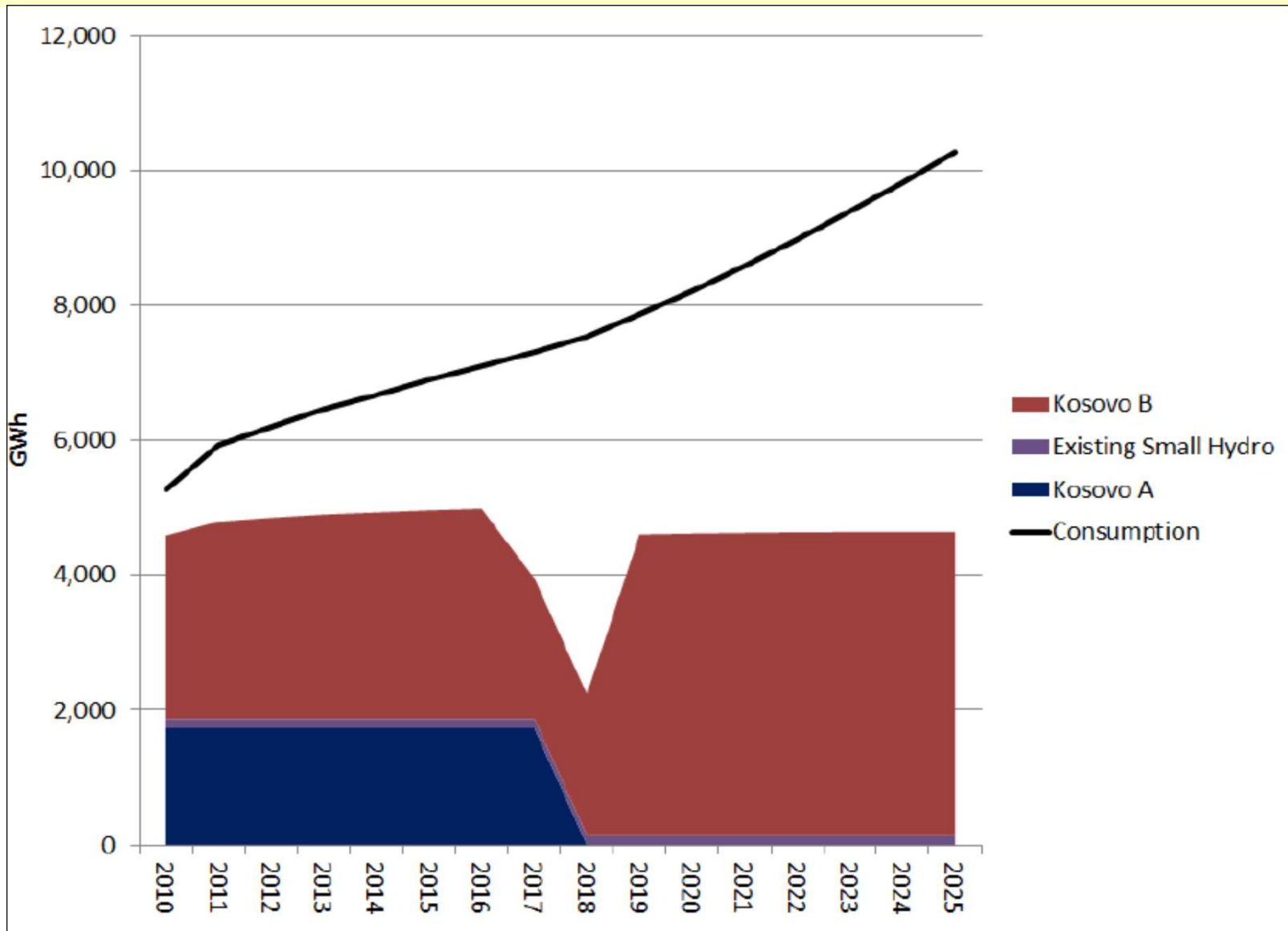
CURRENT MARKET MODEL IN KOSOVO



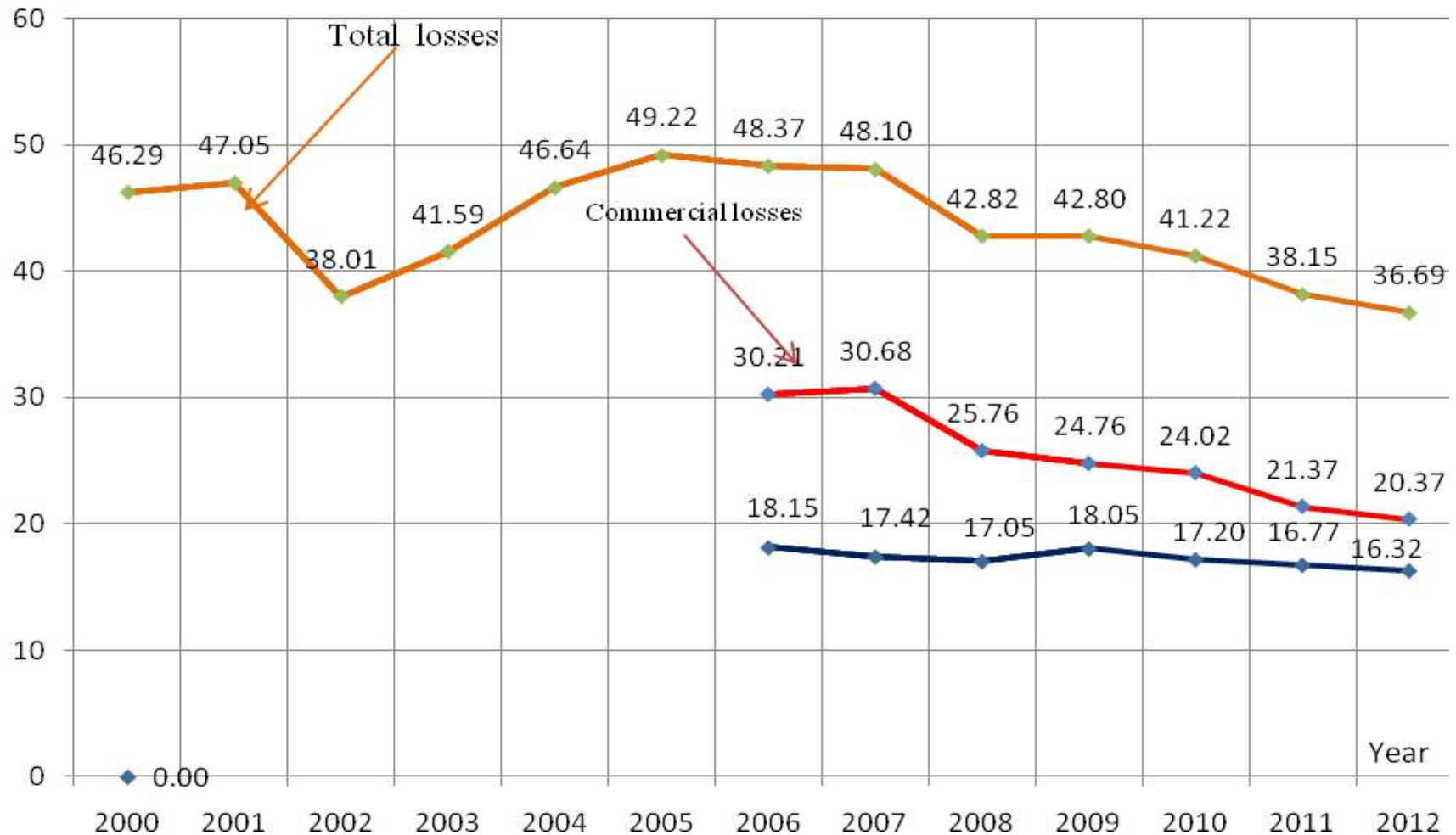
Supply-Demand

- Power consumption in Kosovo grew during the 1990s and 2016, currently Kosovo is suffering seriously from lack of electricity and economy is encountering difficulties.
- Lignite is the only abundant domestic fuel for power generation.
- Some potential for renewable energy generation exists, but it cannot provide the firm capacity Kosovo needs
- Kosovo's needs for new additional capacity is: 950 MW, by 2017, after Kosovo A had been retired, 1200 MW when Kosovo B unit is out of service for capital rehabilitations, 1000 MW in 2019 and about 1500 MW in 2025.
- Hydro and renewables can provide some of this firm capacity, Even if all this new renewable capacity could be build by 2017, there would be a remaining gap for firm base – load capacity which would average about 600 MW in the period.

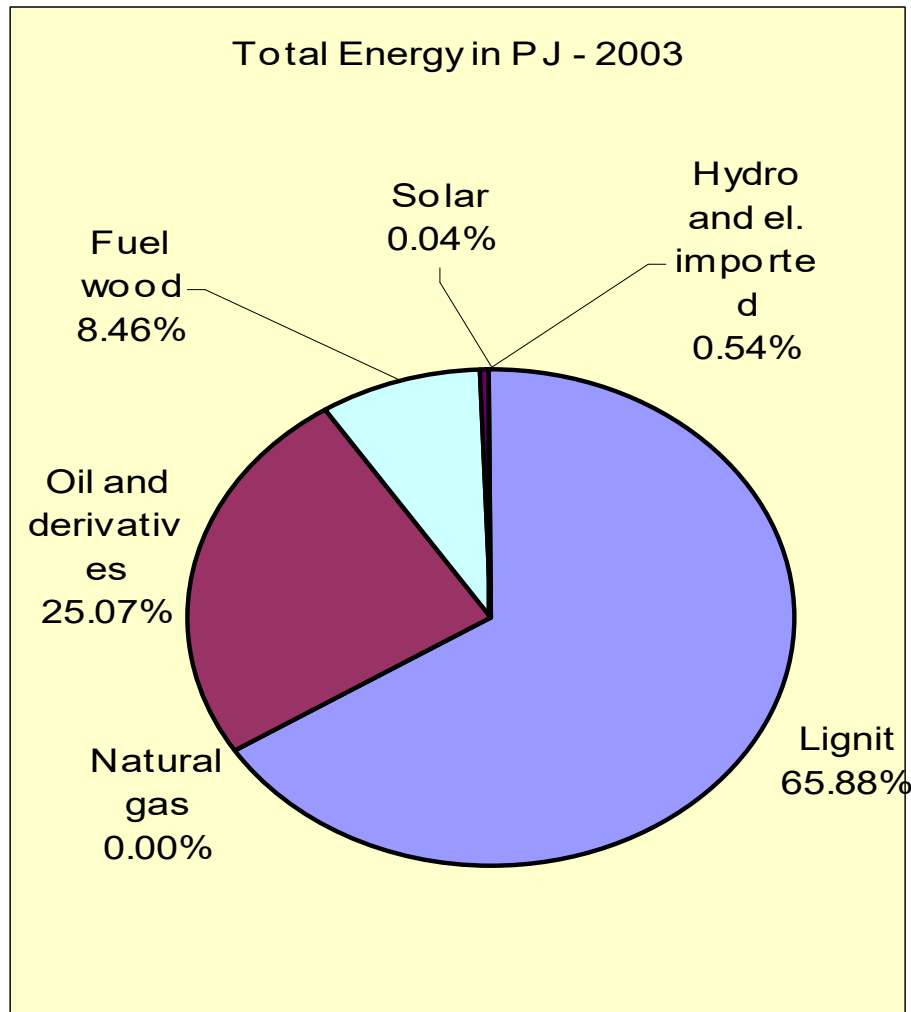
Supply-Demand



Losses in Distribution system

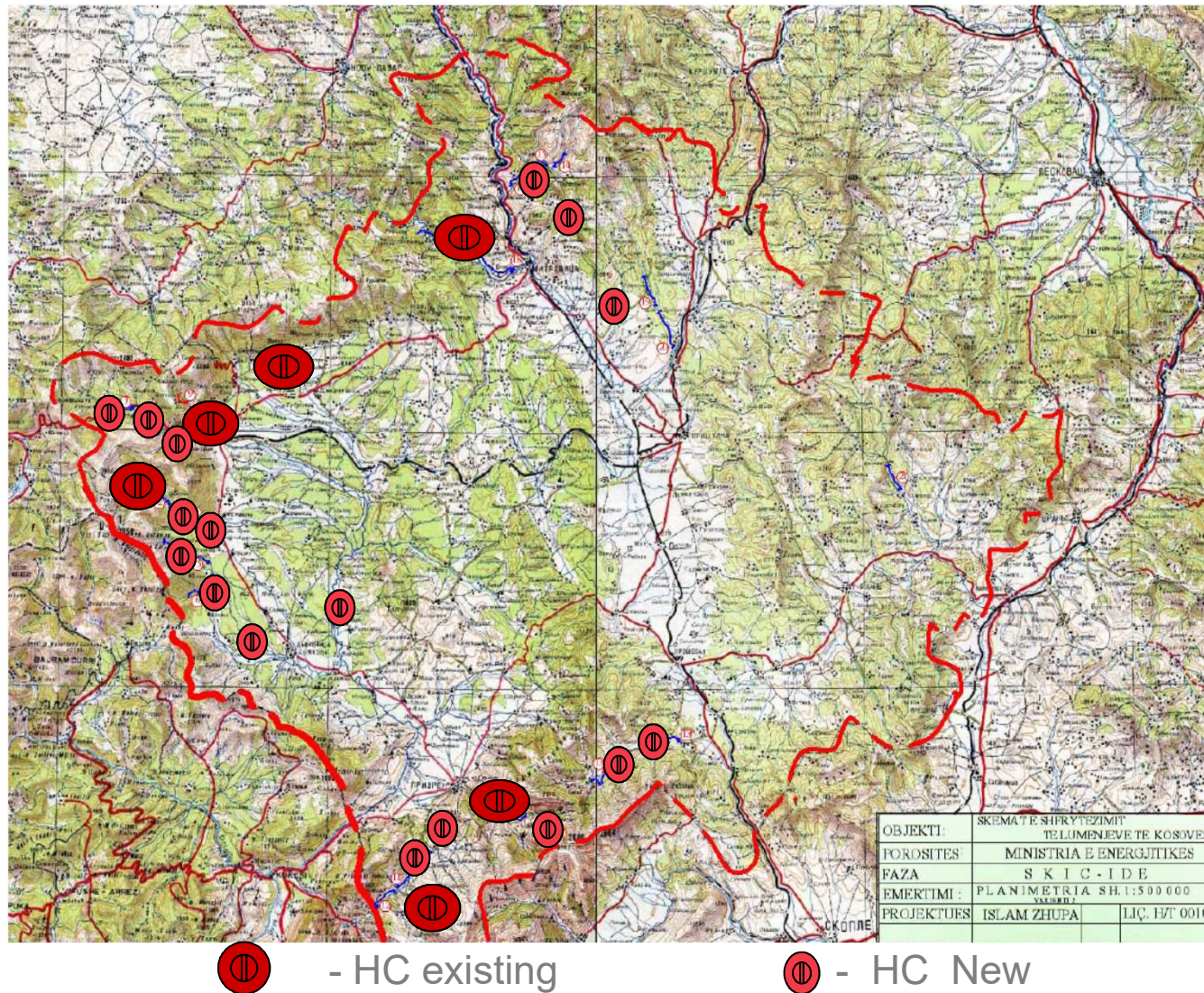


RES RESOURCES



- ❑ Kosovo has substantial potentials for expanding the use of renewable energy sources in electricity generation.
- ❑ Based on the currently available data and our estimates, the medium-term potential may support, by 2020, RES generation in the order of 2.5 TWh per year.

Location of hydro potential in Kosovo



KOSOVO TARGET FOR RES

RES Energy (MWh)								
RES-E [MWh]	2013	2014	2015	2016	2017	2018	2019	2020
Solar	0	6,177.	8,236	12,354	14,413	16,472	18,531	20,590
Biomass solid	7,500	15,000.	30,000	45,000	60,000	75,000	90,000	105,000
Wind	2,720	63,164	141,036	181,332	221,628	261,924	282,072	302,220
Hydropwer - existing	130,900	130,900	130,900	130,900	130,900	130,900	130,900	130,900
Hydropwer-new		270,000	630,000	675,000	720,000	810,000	900,000	1,080,000
Hydropwer- Zhur							398,000	398,000
Total RES-E	1,309,000	1,309,000	1,309,000	1,309,000	1,309,000	1,309,000	1,309,000	1,309,000
Energy capacity for heating and cooling (MW)								
BRE- N&F [MWth]	2013	2014	2015	2016	2017	2018	2019	2020
Solar	7	10.5	17.5	28	38.5	49	59.5	70
Biomass								
Geothermal		0.1	0.5	2	4	6	8	10
Solar	15,000	22,500	37,500	60,000	82,500	105,000	127,500	150,000
Biomass (fuel wood)								
Geothermal		150	750	3,000	6,000	9,000	12,000	15,000
Total BRE- N&F	7	10.6	18	30	42.5	55	67.5	80

Energjia Transport (MWh)								
	2013	2014	2015	2016	2017	2018	2019	2020
(C) Expected RES consumption in transport (ktoe)	0.0037216	0.0194221	0.0400072	0.0823404	0.169798	0.2623728	0.3609952	0.4652
(H) Expected RES electricity in road transport (ktoe)								No targets
(I) Expected consumption of biofuels from wastes, residues, non-food celulosic and lingo-cellulosic matieral in transport (ktoe)								No targets
(J) Expected RES contribution to transport for RES-T target: (C)+(2,5-1)*(H)+(2-1)*(I) (ktoe)	0.0037216	0.0194221	0.0400072	0.0823404	0.169798	0.2623728	0.3609952	0.4652
RES share in transport	0.10%	0.50%	1.00%	2.00%	4.00%	6.00%	8.00%	10.00%
Total BRE- N&F	15,000	22,650	38,250	63,000	88,500	114,000	139,500	165,000

HYDRO ENERGY POTENTIALS

The potentials are as follow:

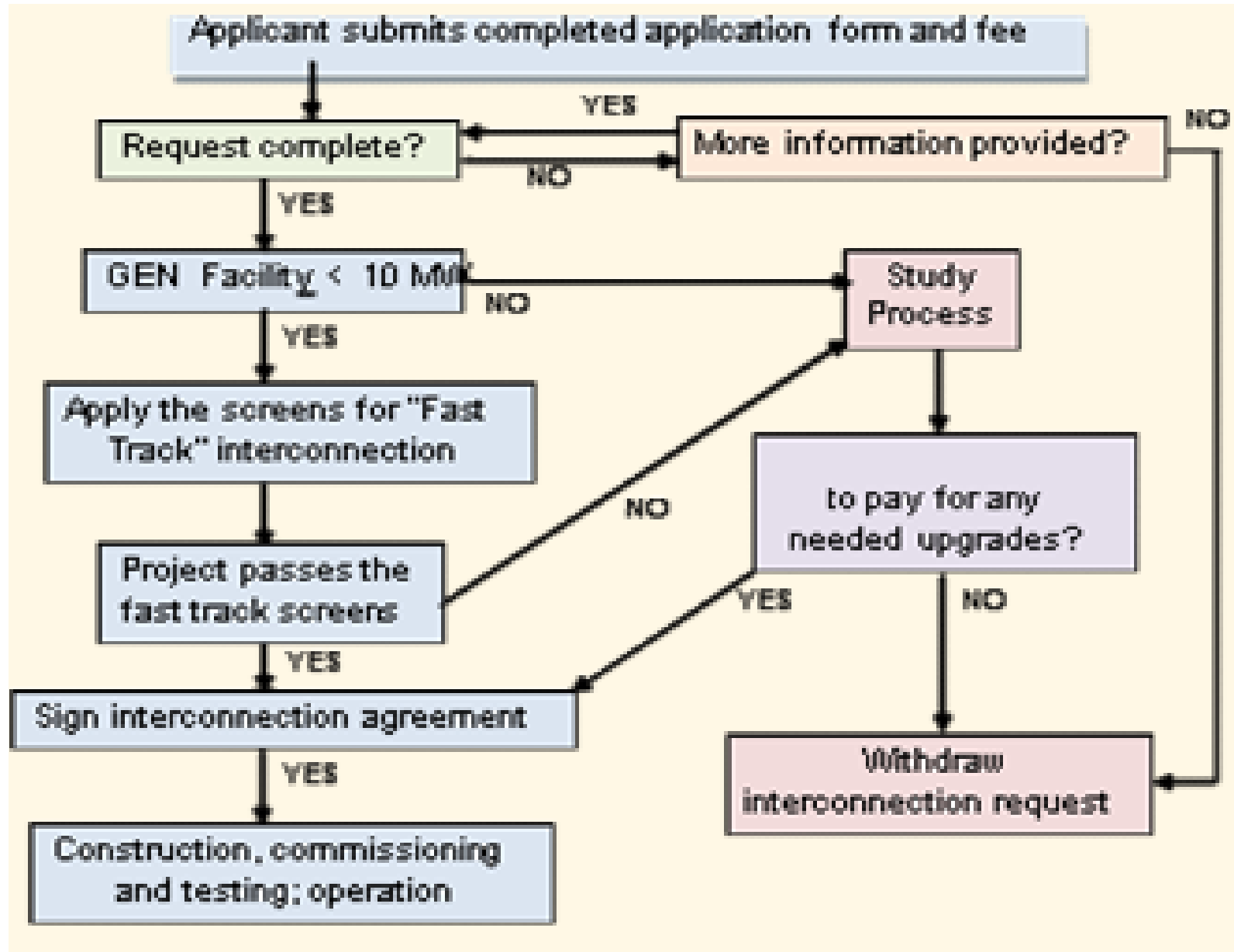
- ❑ The only specific plan for a moderately-sized hydro plant in Kosovo is for the “Zhur” plant, to be located southwest of Prizren. Plant capacity will be about 305 MW, expected to produce approximately 400 GWh of electricity per year under average hydrological conditions. Due to its high storage capacity, it would be operated as a peaking station. This project has been under consideration since the 1980s. Construction is expected to take 6 years.**

- ❑ Studies have also identified 18-20 sites for small hydro plants, with a combined capacity of 64 MW, producing 294 GWh per year under average hydrological conditions.**

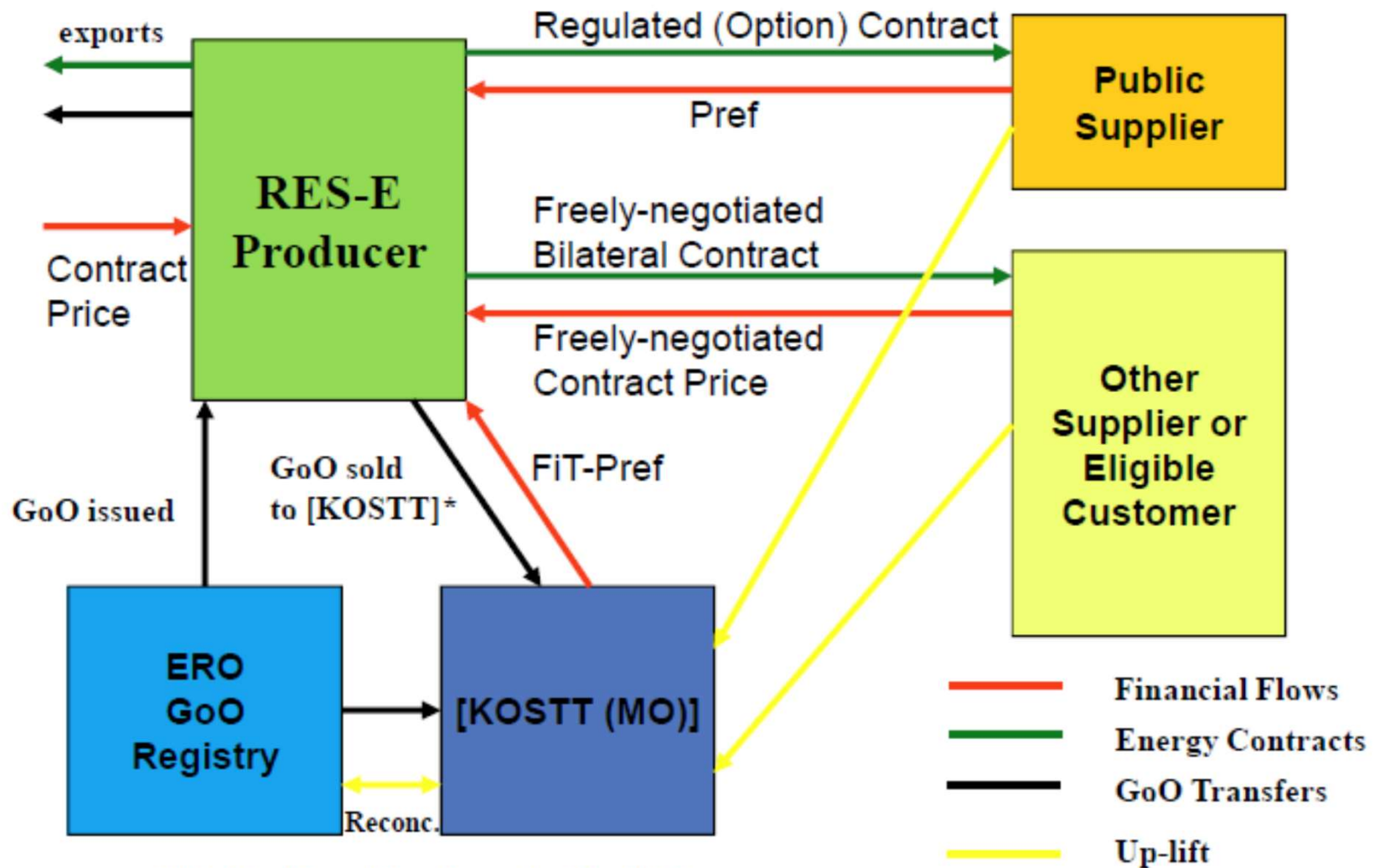
PROCEDURE FOR GRID CONNECTION OF RES GENERATORS TSO/DSO

- TSO/DSO establish and publish standard rules on who bears the costs of technical adaptations, such as grid connections and grid reinforcements, necessary to integrate new generators feeding electricity produced from RES into the interconnected system.

PROCEDURE FOR GRID CONNECTION OF RES GENERATORS TSO/DSO



Support Scheme

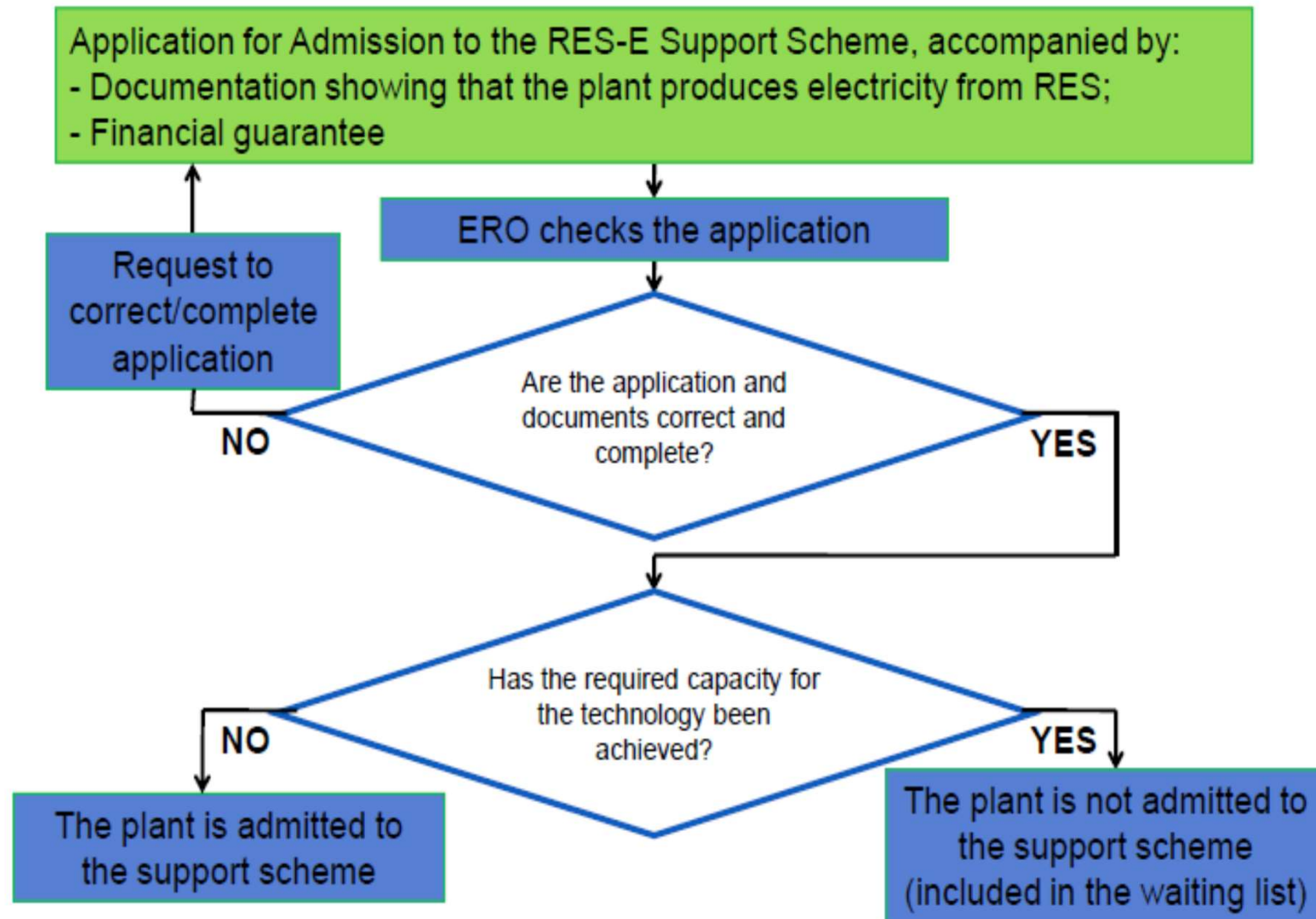


FiT = Feed-in tariff as determined by ERO

Pref = Price set by ERO and reflecting market values

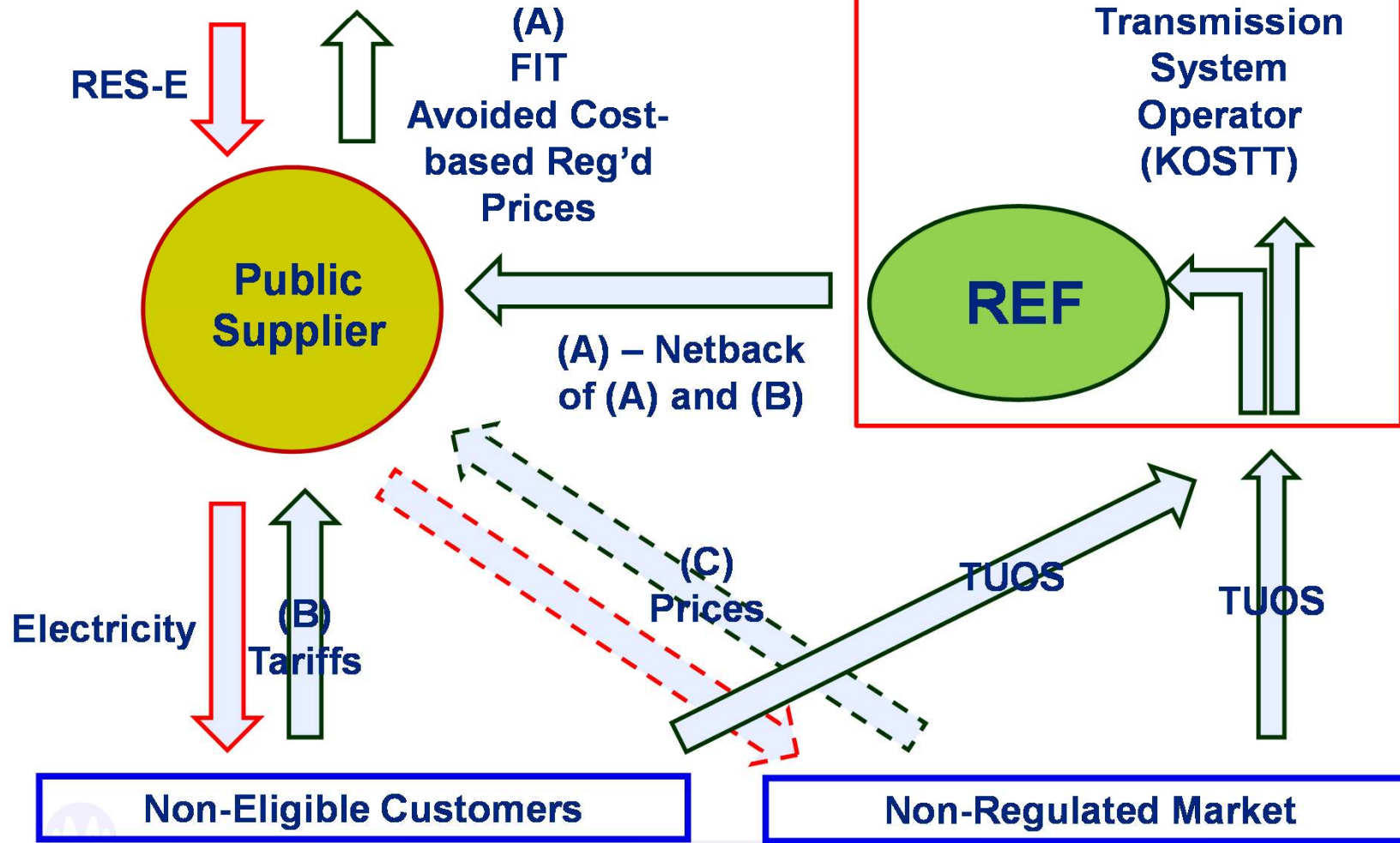
* = only if the plant is admitted to the RES-E support scheme

PROCEDURE FOR ADMISSION TO RES-E SUPPORT SCHEME



The Renewable Energy Fund

Producer of Electricity
issued with CoOs



Feed-in tariff in Kosovo, approved by ERO

RES-E	€/MWh
Hydro < 10 MW	63.3
Wind	85
Solar	n.a.
Biogas and Biomas	71.3

AUTHORIZATION PROCEDURE - RES

APPLICATION PROCEDURE - RES

1st step

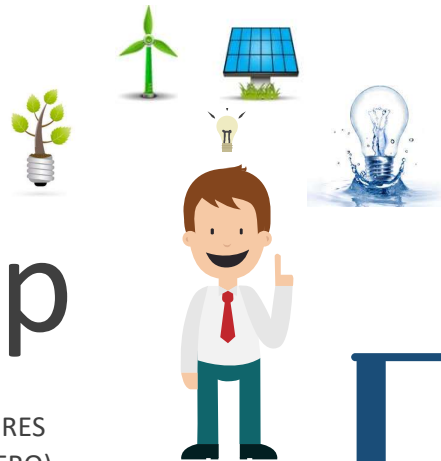
The investor apply for the preliminary authorization for RES to Energy Regulatory Office (ERO)

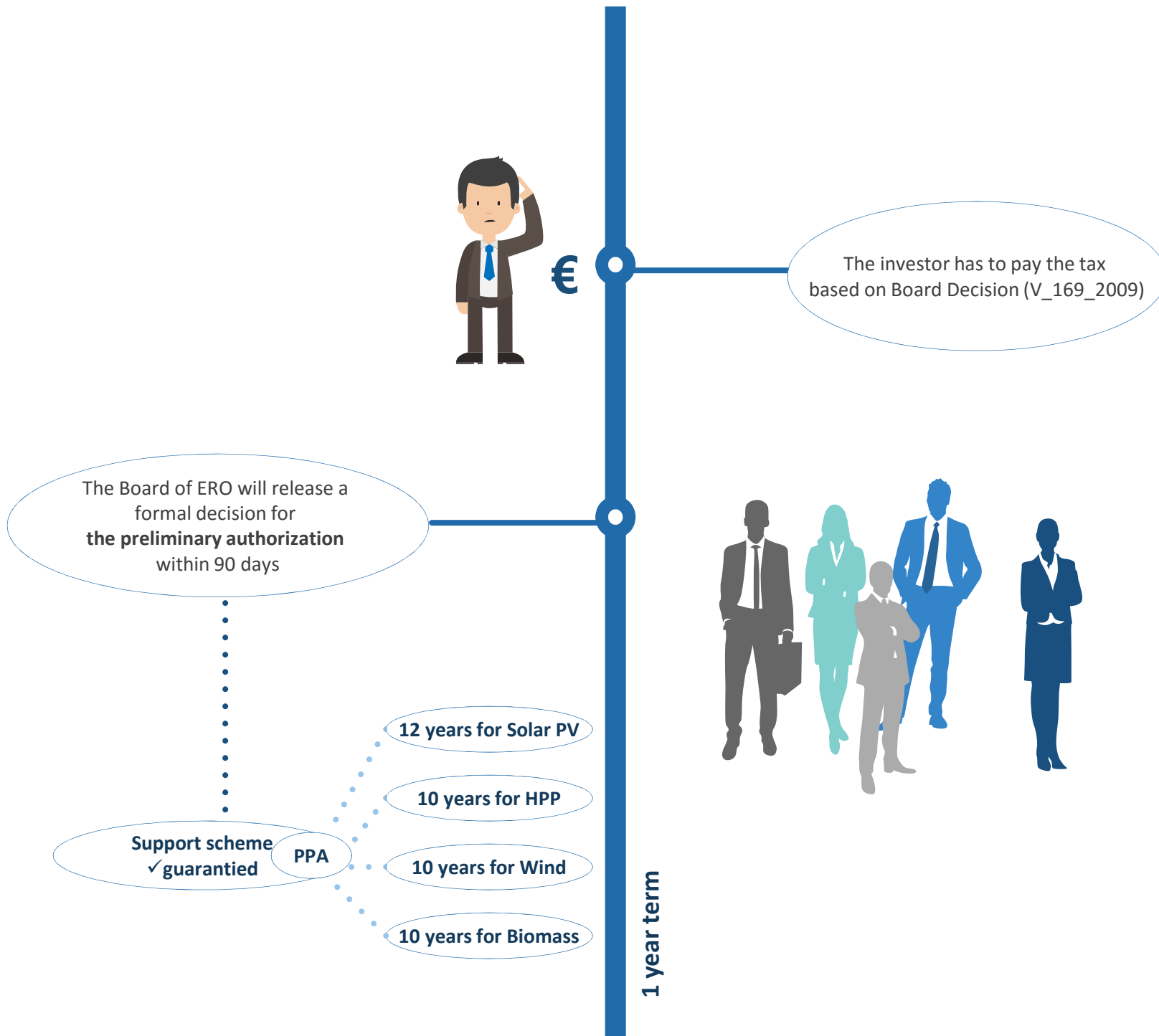
ERO will review the application
within 30 days

Documents required:

- ✓ Business plan
- ✓ Feasibility study
- ✓ The audited financial statements
- ✓ Technical solution
- ✓ Environment consent
- ✓ Water consent (HPP)

...





Next step

The investor apply for the final authorization



- Documents required:**
- ✓ Electro-energy consent
 - ✓ Land permit
 - ✓ Environmental consent
 - ✓ Construction permit
 - ✓ Water consent (HPP)

The ERO Board will release the Final Authorization



The investor has to complete the investment within 2 years (+2 years possible ext.)

Final Step

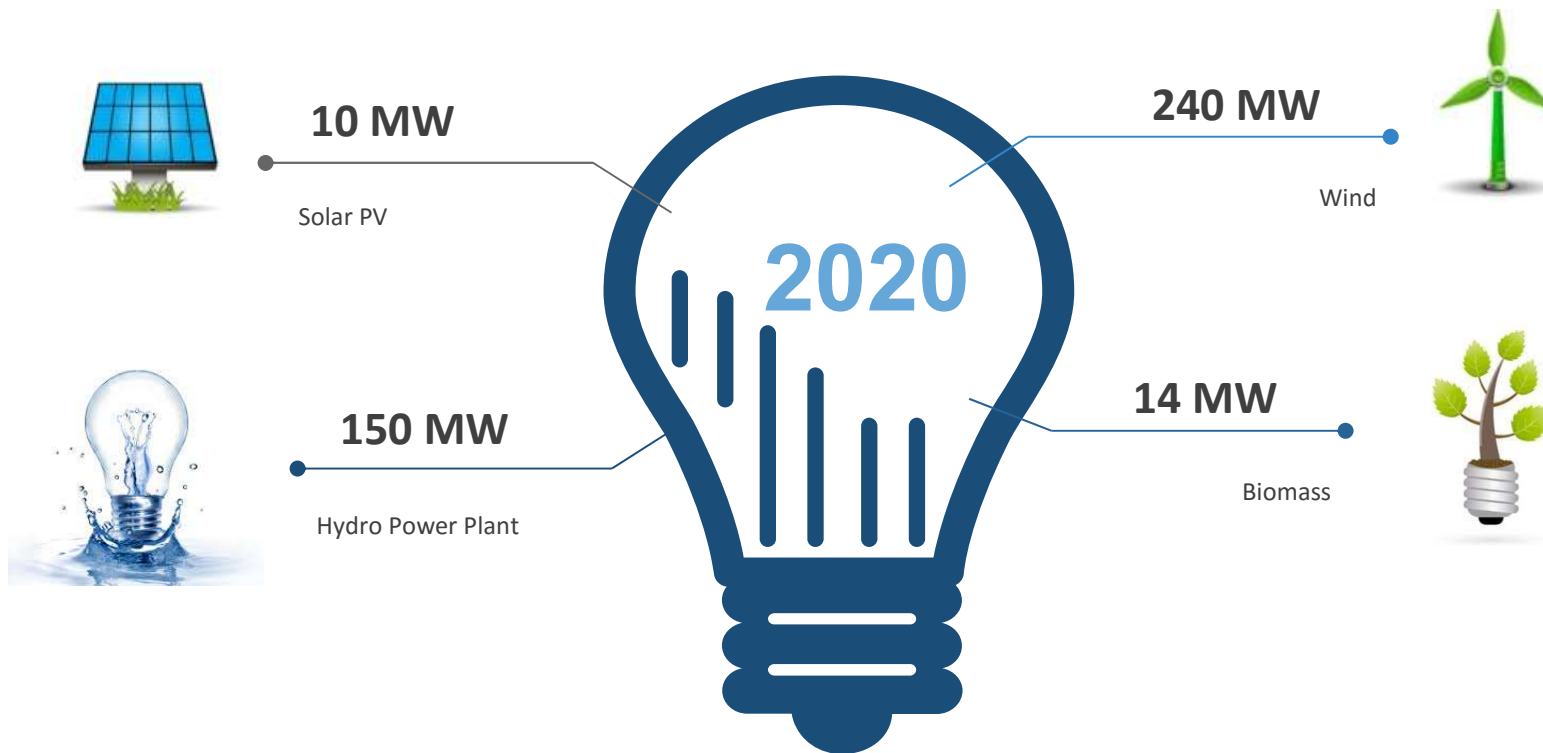
The investor has to sign the PPA
30 days before the operation
started



**For the generation capacity of more than 5MW
the application for License from ERO is required**



Indicative targets 2020



Achievements



Solar PV

- 7 applications, one of them in operation
- 10.27 MW generation capacity



Wind

- 8 applications, one of them in operation
- 257 MW generation capacity



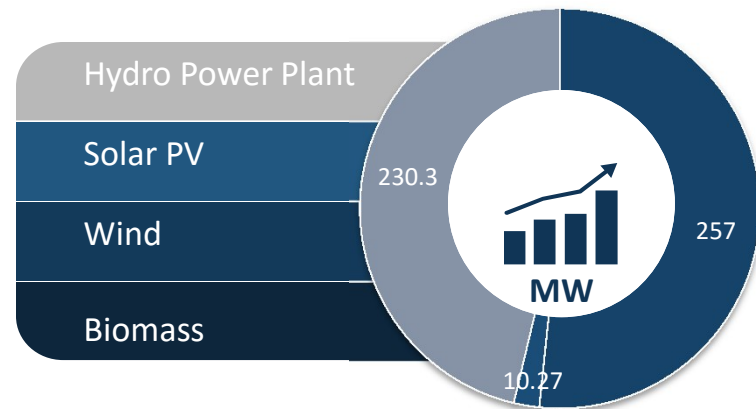
Hydro Power Plant

- 27 applications
- 230.3 MW generation capacity



Biomass

There is no application yet



THANK YOU!



Kuçishte Peje

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