

Wuppertal Institut
für Klima, Umwelt, Energie
GmbH



Economics of RETs

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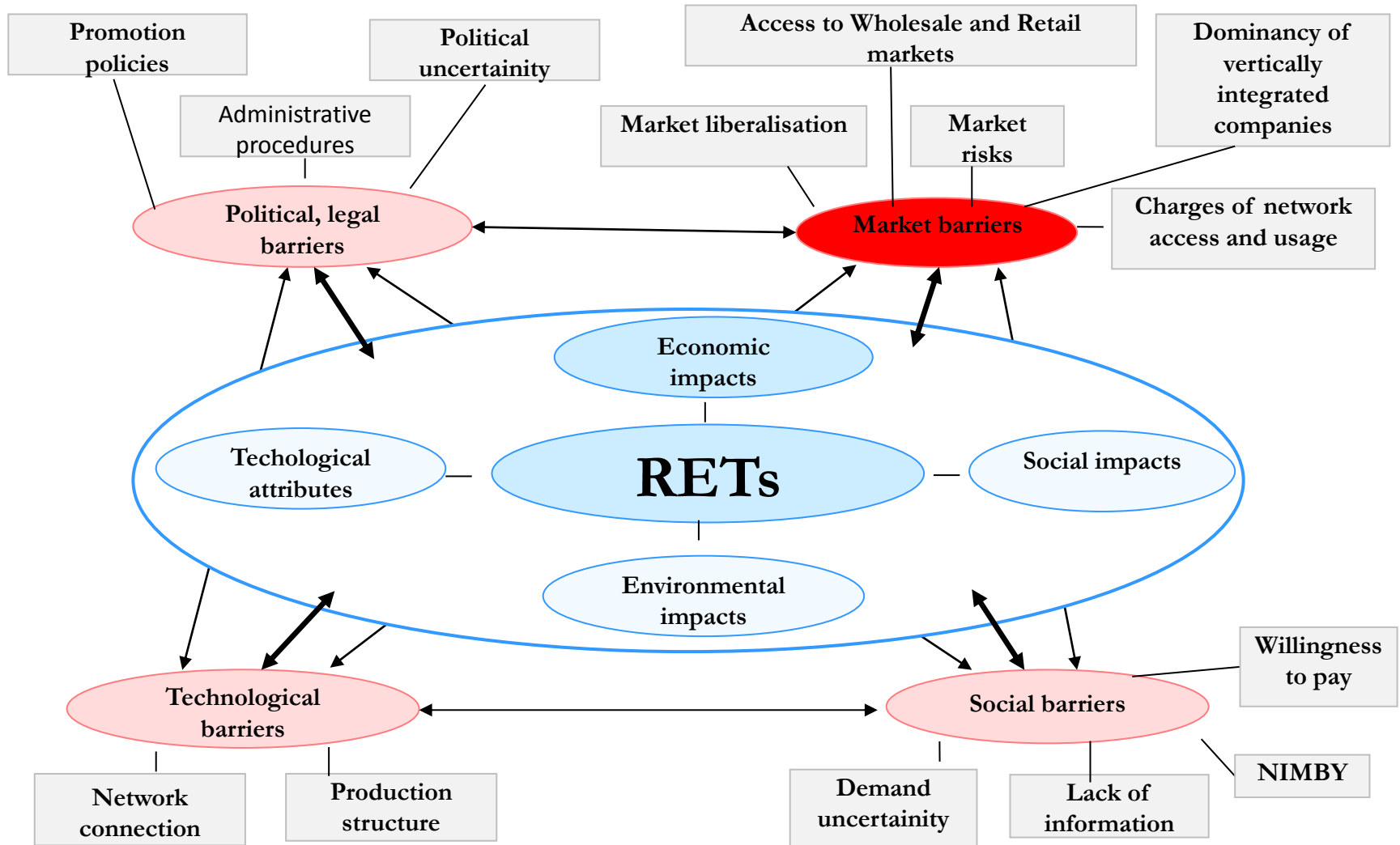
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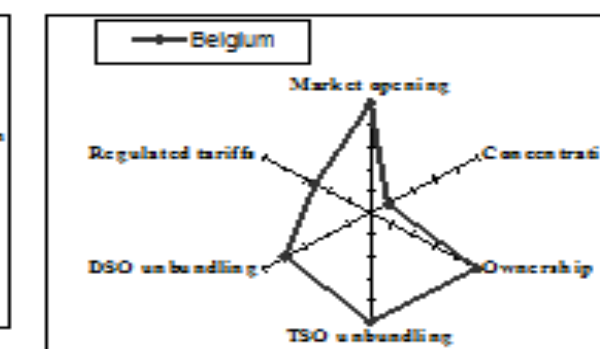
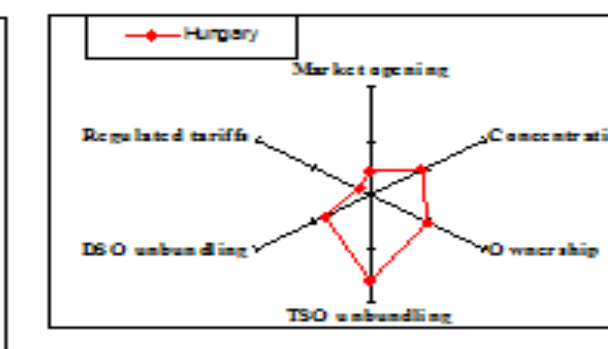
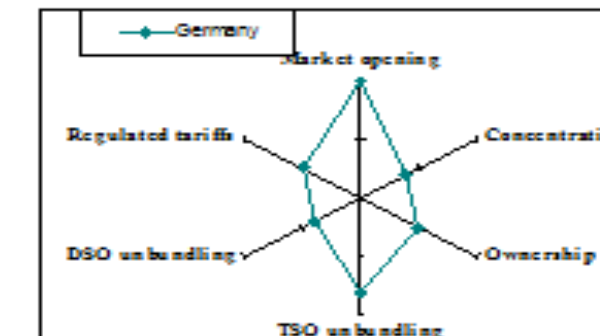
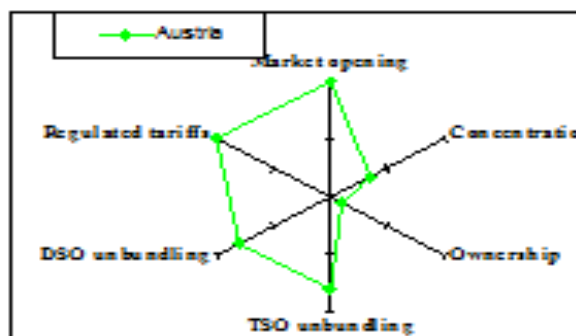
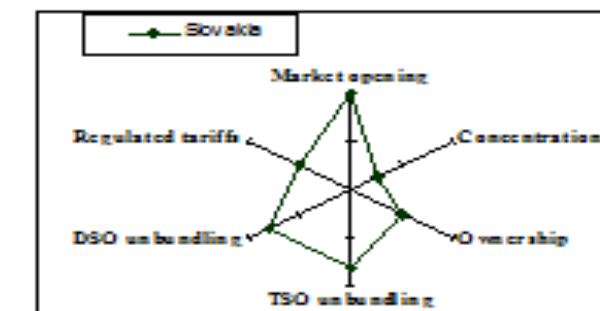
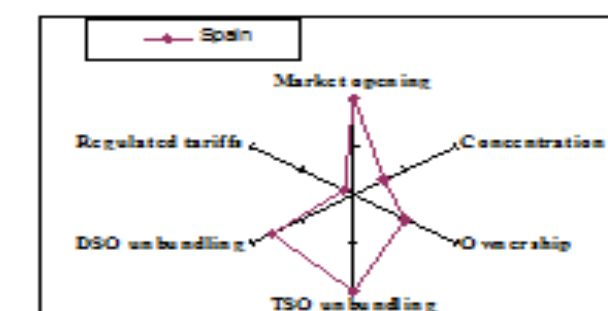
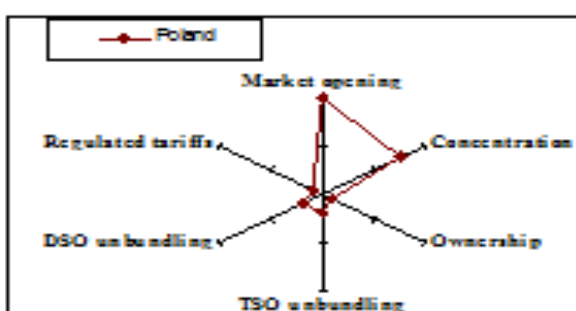
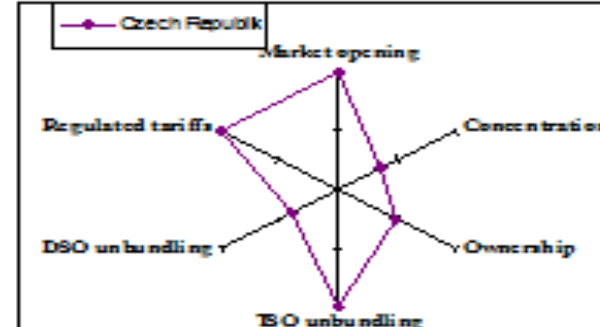
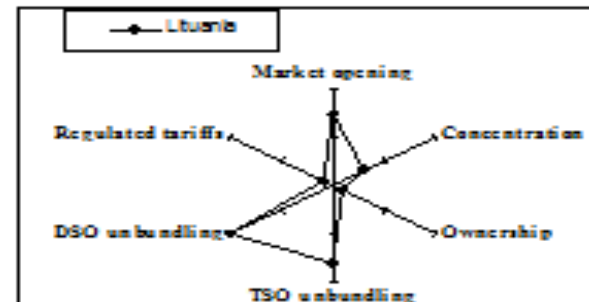


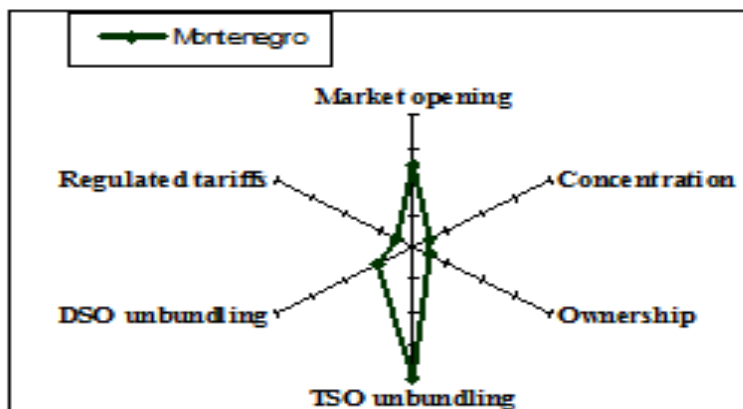
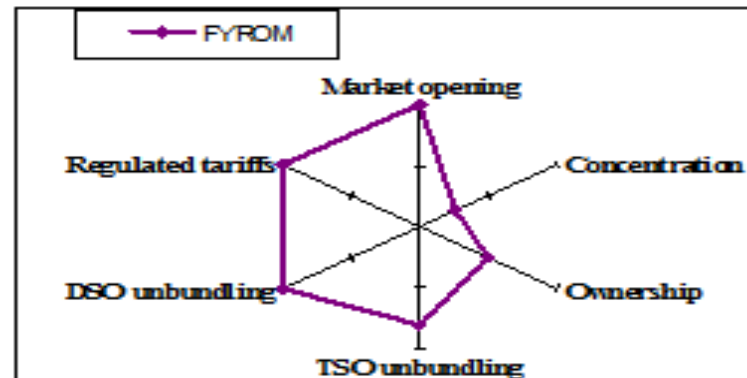
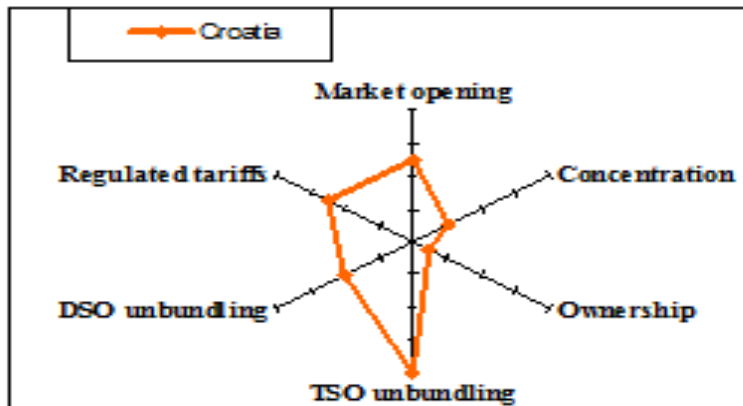
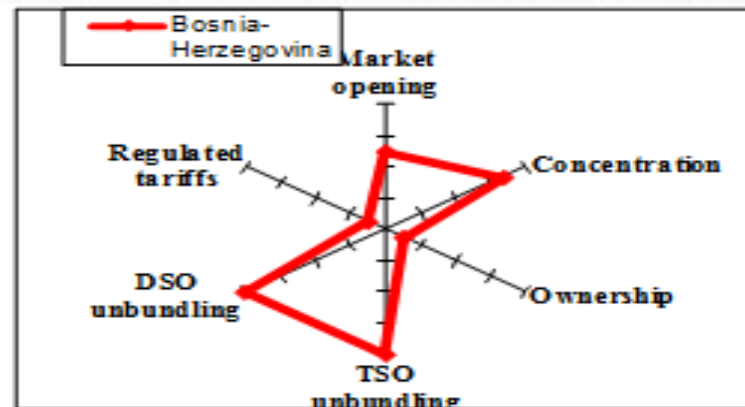
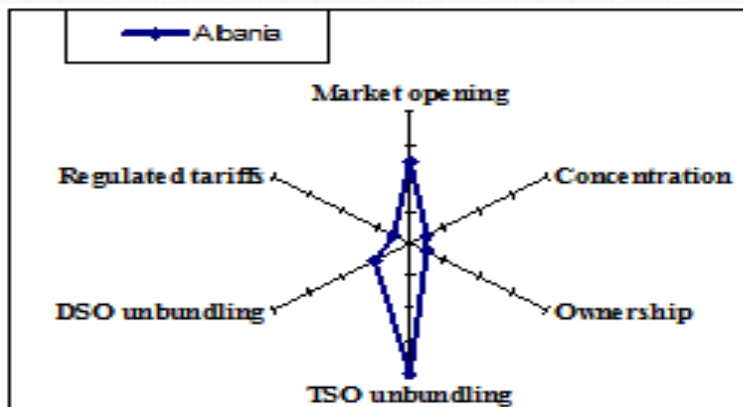
Deutsche
Bundesstiftung Umwelt
















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Competitiveness of RETs







Country	plant operator	system operator	balance group operator	no schedule required	other
HU, SK, RS, BA, ,					
AT					
BG					
CZ					
DE					
RO, SI					
ME					
UA,HR, MD					

Overall lead time**below 9 months****9-24 months****above 24 months****0 - 5**

DE, ME

**Authorities
involved****5 - 15**

SK, SI, MD

AT, BG, CZ

RO, UA, HR

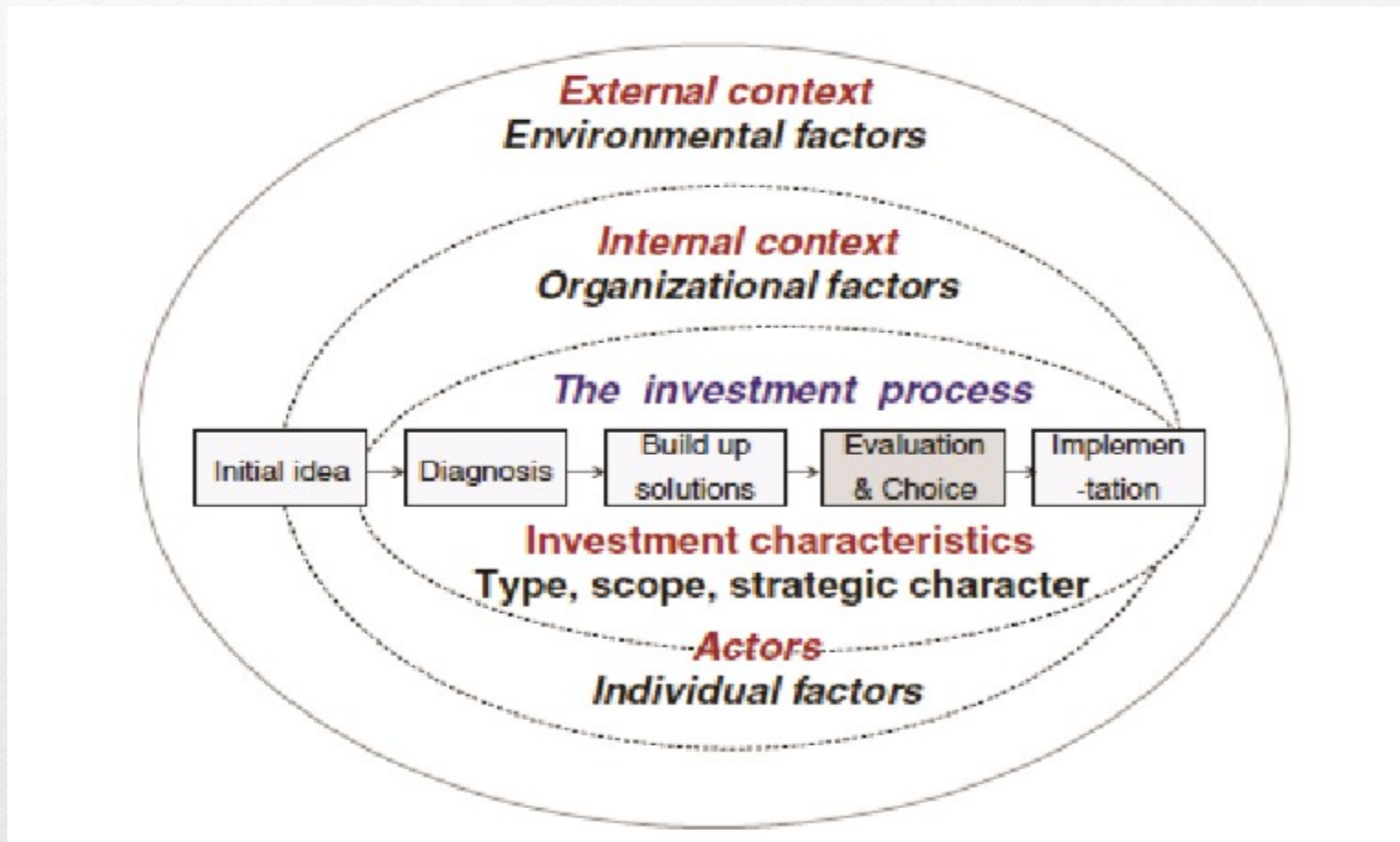
RS

above 15

HU, BA

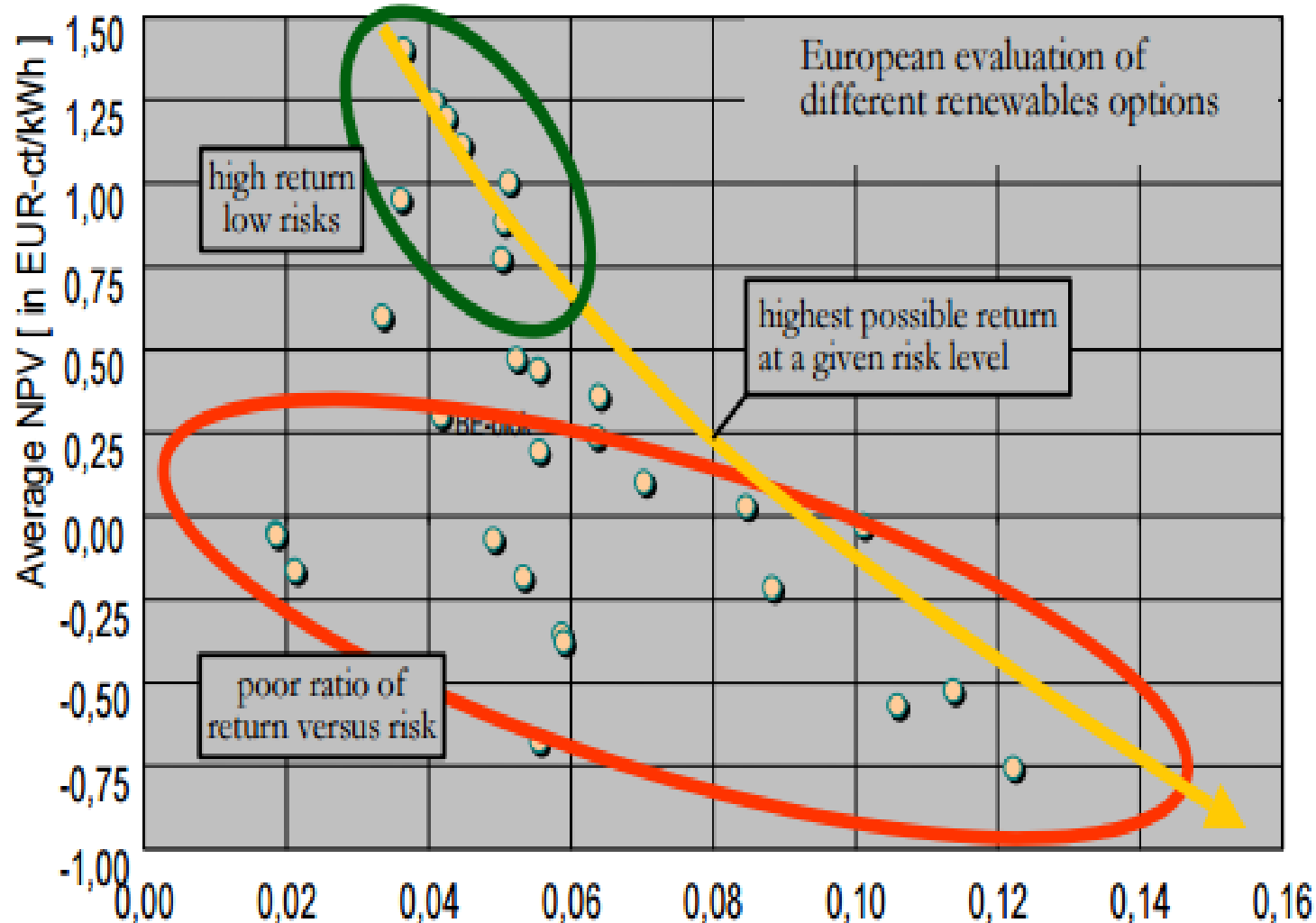
Level of priority granted for RES-E plants when <u>connecting</u> to the grid	priority	non-discriminatory	other
	BG, CZ, DE, SK, SI	AT, RO, RS, BA, ME, MD, UA, HR	HU
Allocation of scarce RES-E connection opportunities in case of scarce grid connection capacity	first come first served	competitive bidding (tender)	other
	AT, BA, BG, CZ, DE, HR, MD, RO, RS, SK, SI, UA	HU	ME
Cost sharing regime of grid connection	shallow		non-shallow
	BG, RS, MD, DE		AT, BA, CZ, HR, HU, ME, RO, SK, SI, UA
Does the connection charges regime for RES-E plants differ	no	yes	
	AT, BA, BG, CZ, DE, HR, MD, ME, RO, RS, SI, UA	HU, SK	

Conceptual framework of the investment process





	<i>producer of green energy</i>	<i>buyer of green energy (in case of a certificate system)</i>
<i>operational risk</i>	<i>prediction capability of load and grid imbalance is crucial for less mature technology performance is a risk factor</i>	<i>depends on banking strategy of certificates, otherwise possibly relatively low risk</i>
<i>product market risk</i>	<i>demand expected to rise (favourable), but at same time competition may increase strongly as well</i>	<i>demand expected to rise (favourable), but at same time competition may increase strongly as well</i>
<i>input risk</i>	<i>bio-energy options: fuel costs important wind and hydro: varies with climate</i>	<i>large profits at risk when long-term contracts are closed and prices change</i>
<i>regulatory risk</i>	<i>very important: profit strongly depends on price support import protection</i>	<i>very important: profit & sales strongly depends on price support / tax breaks</i>
<i>financial risk</i>	<i>in particular relevant without long-term contracts and for sources where capital costs dominate (wind, hydro)</i>	<i>depends on inventory size (banking) and portfolio of contracts</i>



Special attention to Promotion policies for RETs in the Danube Region



Most common policies

- **Regulatory policies**
 - renewable energy targets
 - feed-in tariff/premium payment
 - electric utility quota obligation
 - renewable portfolio standard (RPS)
 - net metering
 - biofuels obligation/mandate – heat obligation/mandate
 - tradable renewable energy credit (REC).
- **Fiscal incentives**
 - capital subsidy, grant and rebate
 - investment and production tax credits
 - reductions in sales taxes, energy taxes, CO2 taxes, VAT and other taxes
 - energy production payment
- **Public financing**
 - public investment, loans and grants
 - public competitive bidding/ tendering

COUNTRY	QUOTA	FEED-IN TARIFF	PREMIUMS	SUBSIDIES, LOANS, TAXES	ACCESS TO GRID
AUSTRIA		X		PV, Hydro	Granted
BOSNIA-HERZEGOVINA		X	N.A.	N.A.	N.A.
BULGARIA		X			No priority
CROATIA		X	Special provision Wind	Loans	
CZECH REP.		X (Granted)	Green bonus on market price	Hydro	Priority
GERMANY		X	Market and Flexibility	Low interest loans	
HUNGARY		X		Households: net metering	Priority
MOLDOVA		X	N.A.	N.A.	N.A.
MONTENEGRO		X			Priority
ROMANIA	X			Subsidies, loans	Priority
SLOVAKIA		X			Priority
SLOVENIA		X		Subsidies, loan	Priority
SERBIA		X			Priority
UKRAINE		X	N.A.	N.A.	No priority

COUNTRY	HEATING	Heat-Tech.	TRANSPORT (biofuels only)
AUSTRIA	Subsidies	Solar thermal, Heat pumps, Biomass, Geothermics	Quota, tax regulation
BOSNIA-HERZEGOVINA	N.A.	N.A.	N.A.
BULGARIA	Loans, tax regulation	All	Quota, tax regulation
CROATIA	NOT PROMOTED BY THE STATE		Quota, tax regulation, subsidies
CZECH REP.	Quota and tax regulation	All	Quota and tax regulation
GERMANY	Subsidies, loan	Biogas, biomass, geothermal energy, solar thermal	Quota and tax regulation
HUNGARY	Subsidies	All	Quota
MOLDOVA	N.A.	N.A.	N.A.
MONTENEGRO	N.A.	N.A.	N.A.
SLOVAKIA	Finantial support	All	Quota and tax regulation
SLOVENIA	Soft loan	All (Solar, Heat pumps, biomass)	Quota and tax regulation
SERBIA	n.a.	n.a.	n.a.
ROMANIA	Subsidies	All	Quota
UKRAINE	N.A.	N.A.	N.A.