PRICE-BASED OR TRADING-BASED PROMOTION FOR RENEWABLES IN EMERGING & DEVELOPING COUNTRIES?

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SURVEY

1. Introduction

2. Different cases and promotion schemes

3. When are FIT proper?

4. Prospects for trading systems?

5. RES promotion in develop. countries

6. Conclusions

1 INTRODUCTION: MOTIVATION

- **Why promoting RES ?**

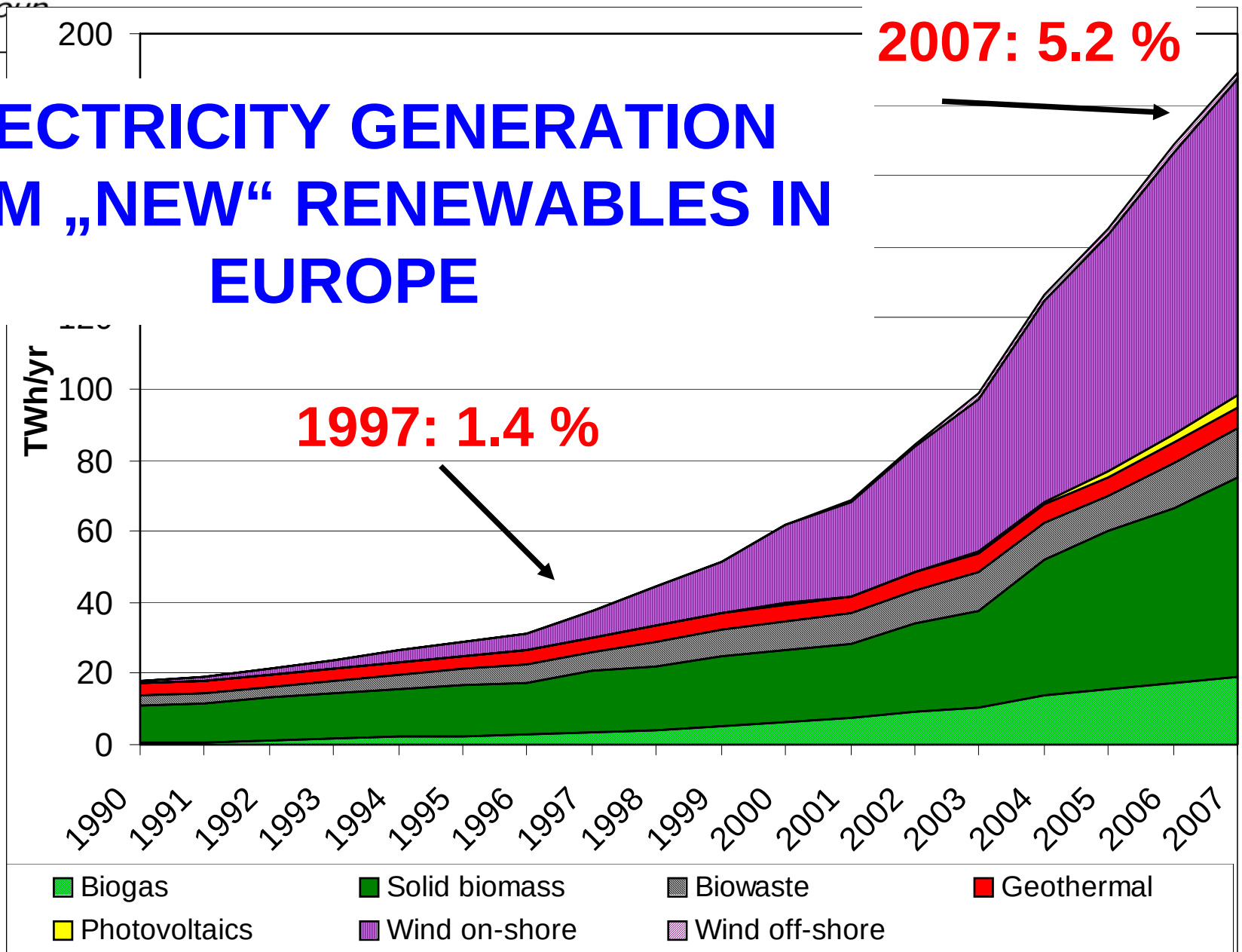
- **Promoting RES in Europe in recent years was rather succesful; ?**

- **From promoting RES in the EU: Recommendations for other countries**

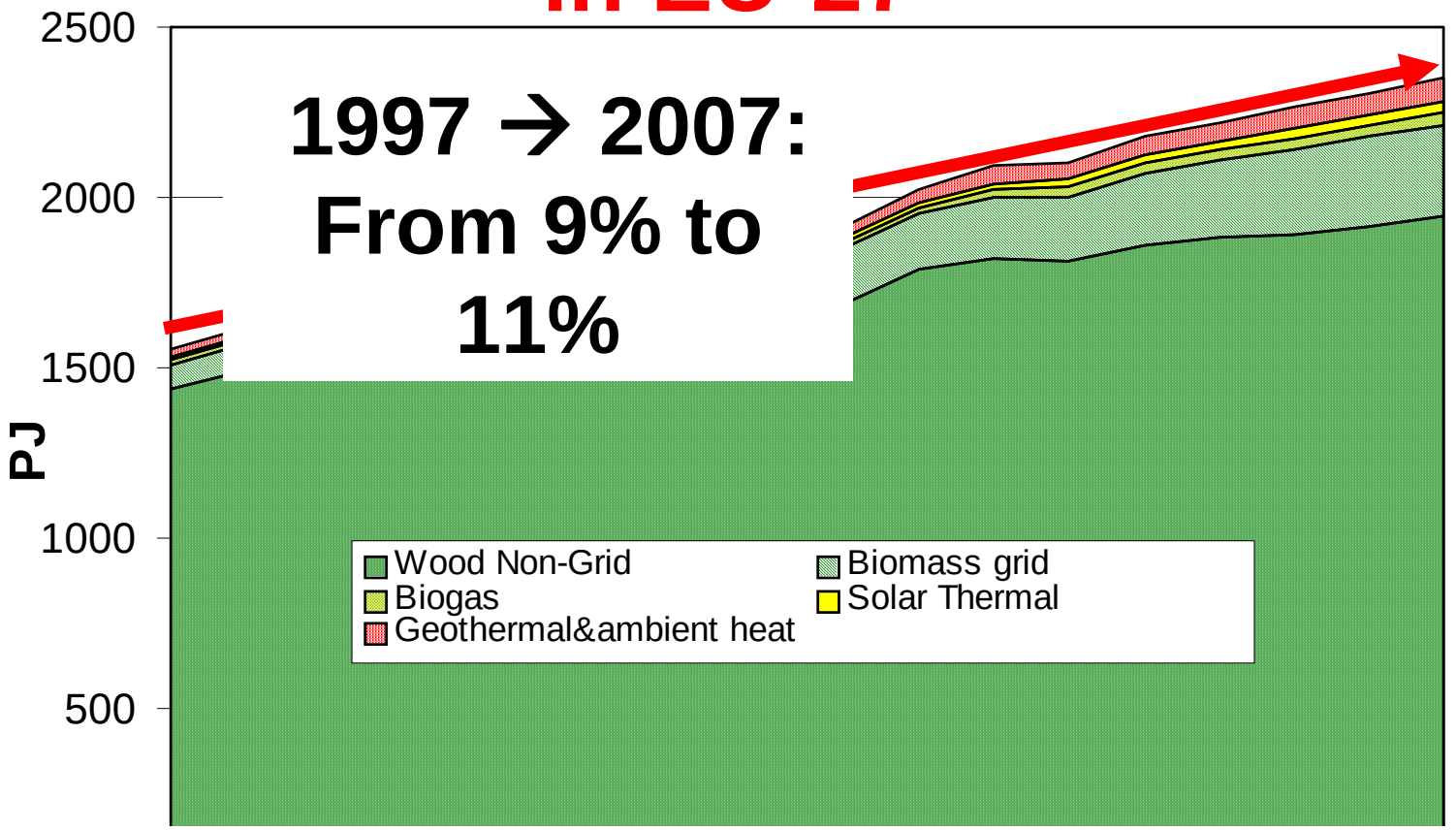
PROMOTING RENEWABLES – WHY (NOT)?

- **Is it justified (today) to promote energy use from renewables?**
- **Expected benefits for society: environment, supply security**
- **Historically: Most energy technologies for electricity generation subsidized in some way (Coal, nuclear, hydro…)**
- **In the long term: subsidizing consumption of any energy carrier will not lead to sustainability → taxation of externalities!**

ELECTRICITY GENERATION FROM „NEW“ RENEWABLES IN EUROPE

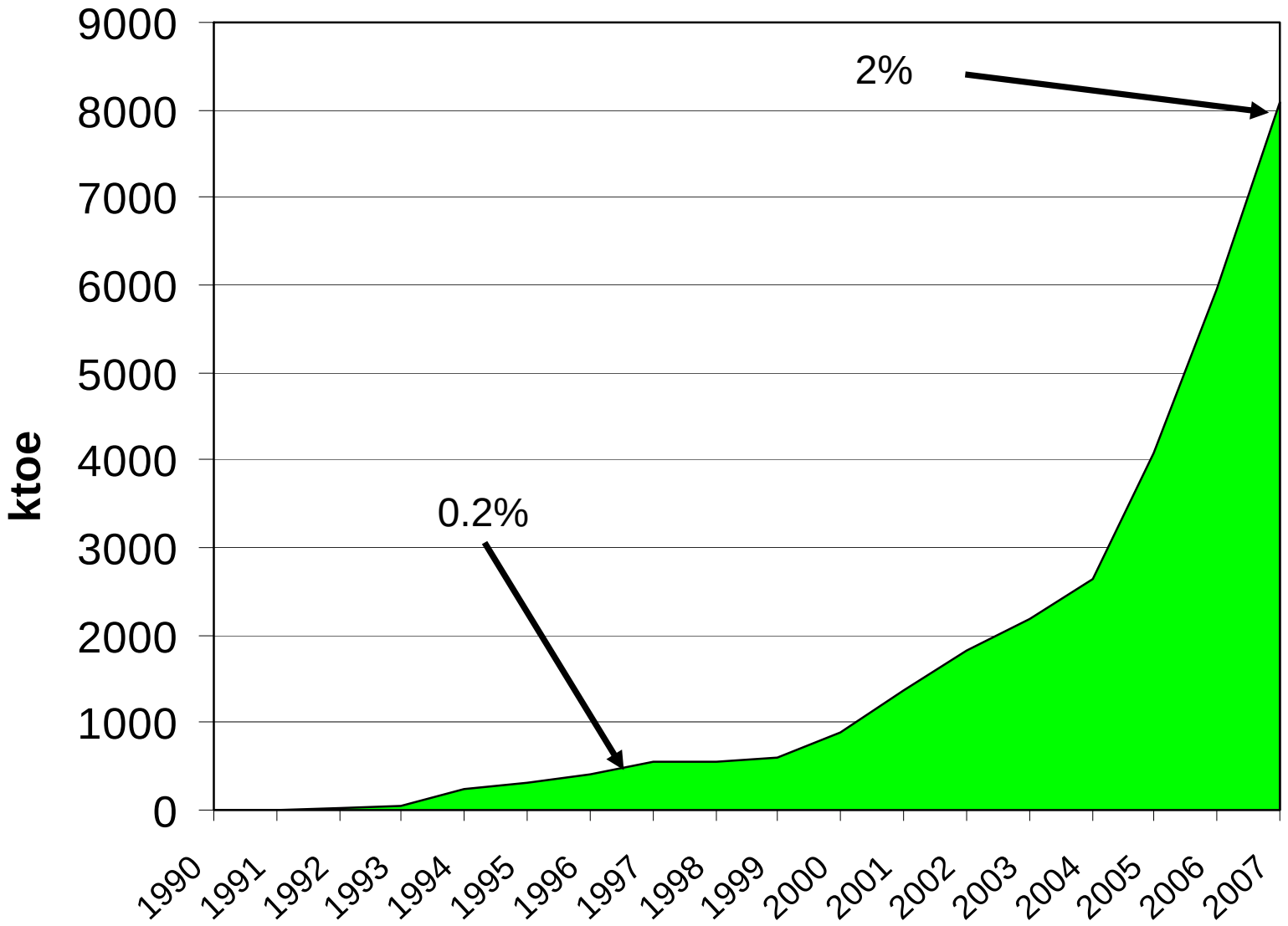


Heat from renewables in EU-27



Main support instruments: Subsidies and income tax incentives for biomass boilers and solar thermal collectors

Total biofuels in EU-27



REMARK ON RES – DEPLOYMENT IN THE EU-COUNTRIES

- **Since about 1997 triggered by EU-directives and EU initiatives**
- **Yet, specific country success stories very strongly related to national policies design!**
- **Moreover, current harmonisation efforts not necessarily towards most effective and efficient policies!**

INTRODUCTION

WHAT IS THE TARGET?

INCREASE the share of RES…

in a sustainable manner…

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Especially in developing countries it is important to promote the deployment of renewable energy (regardless whether it is for heating, electricity generation or transport fuels)

in a way that creates a sustainable economy!

MAJOR PROBLEM:

Correct design of policies and Financing:

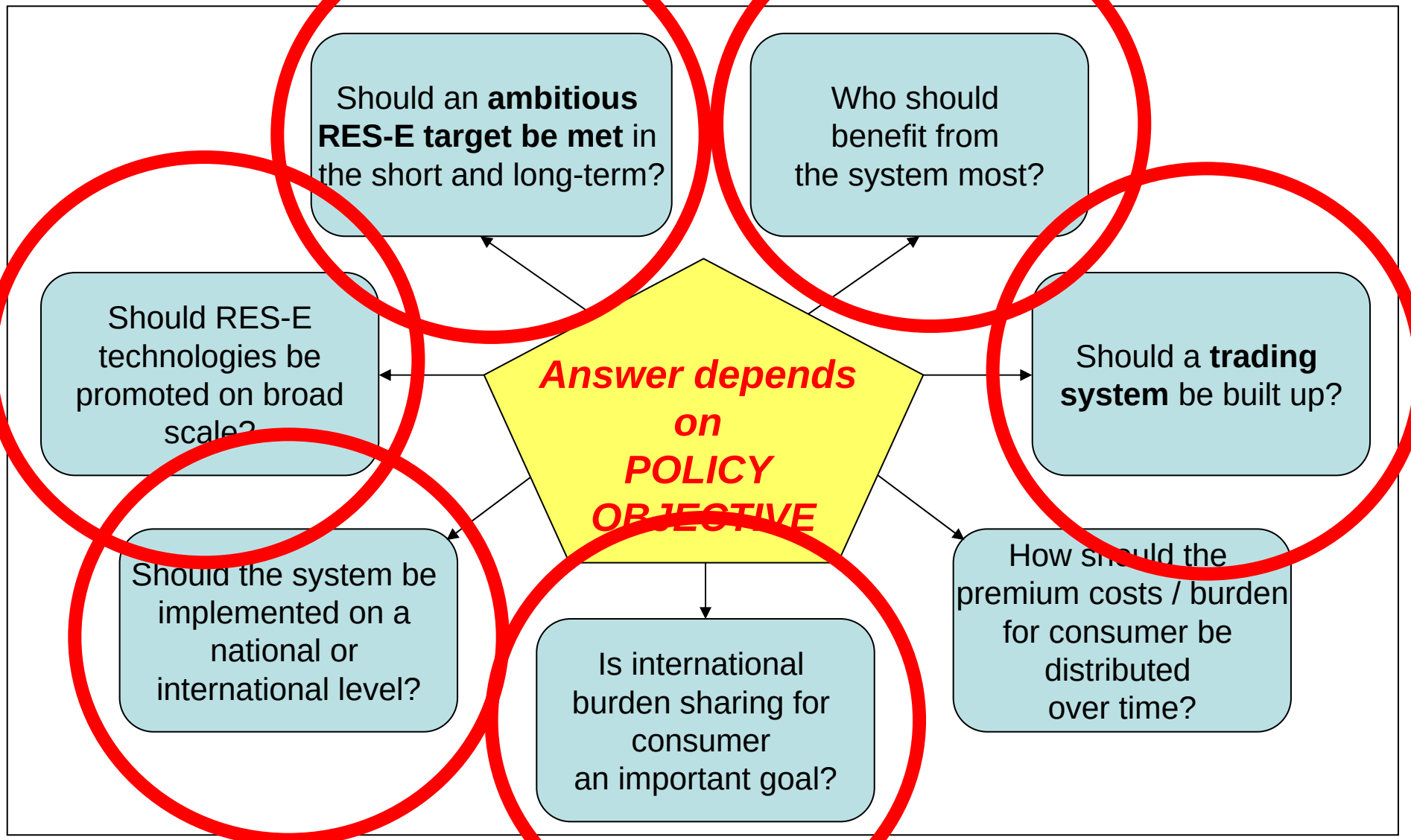
- **with respect to:**
- **renewable targets**
- **Financial incentives**
- **Credibility for investors**
- **Transfer costs!**

2. Survey cases and policy strategies

		REGULATORY	VOLUNTARY
Capacity-driven strategies	Generation-based	GO-Trade	• National generation targets
	Investment focused	• Bidding/Tendering	• National installation or capacity targets
Price-driven strategies	Generation-based	FITs • [illegible] • Net metering	• Green Power Marketing • Green tariffs • Solar stock exchange
	Investment focused	INVEST	• Contracting • Shareholder progr. • Contribution • Bidding
Other		–	• NGO-marketing • Selling green buildings FINANCING

What is the problem?

Which instrument fits best?



POSSIBLE LOCAL VS "GLOBAL" BENEFITS FROM PROMOTING RES

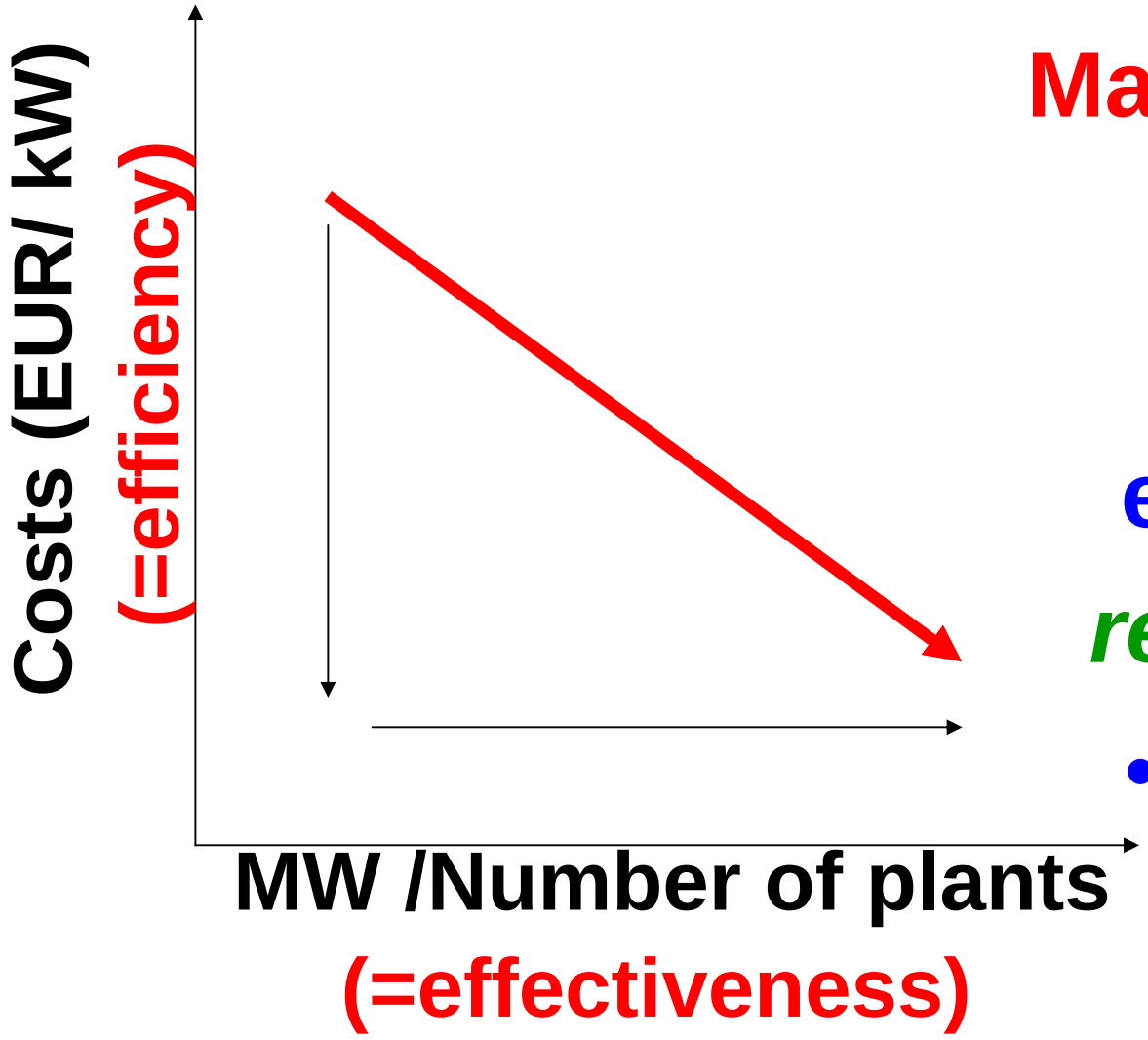
	LOCAL	INDUST. COUNTRIES
HEAT	+++	- - -
ELECTRICITY		
Central	(+) Royalty?	+++
De-central	+++	- - -
BIOFUELS	++	++

MAJOR PROBLEM:

Correct design of policies and Financing schemes

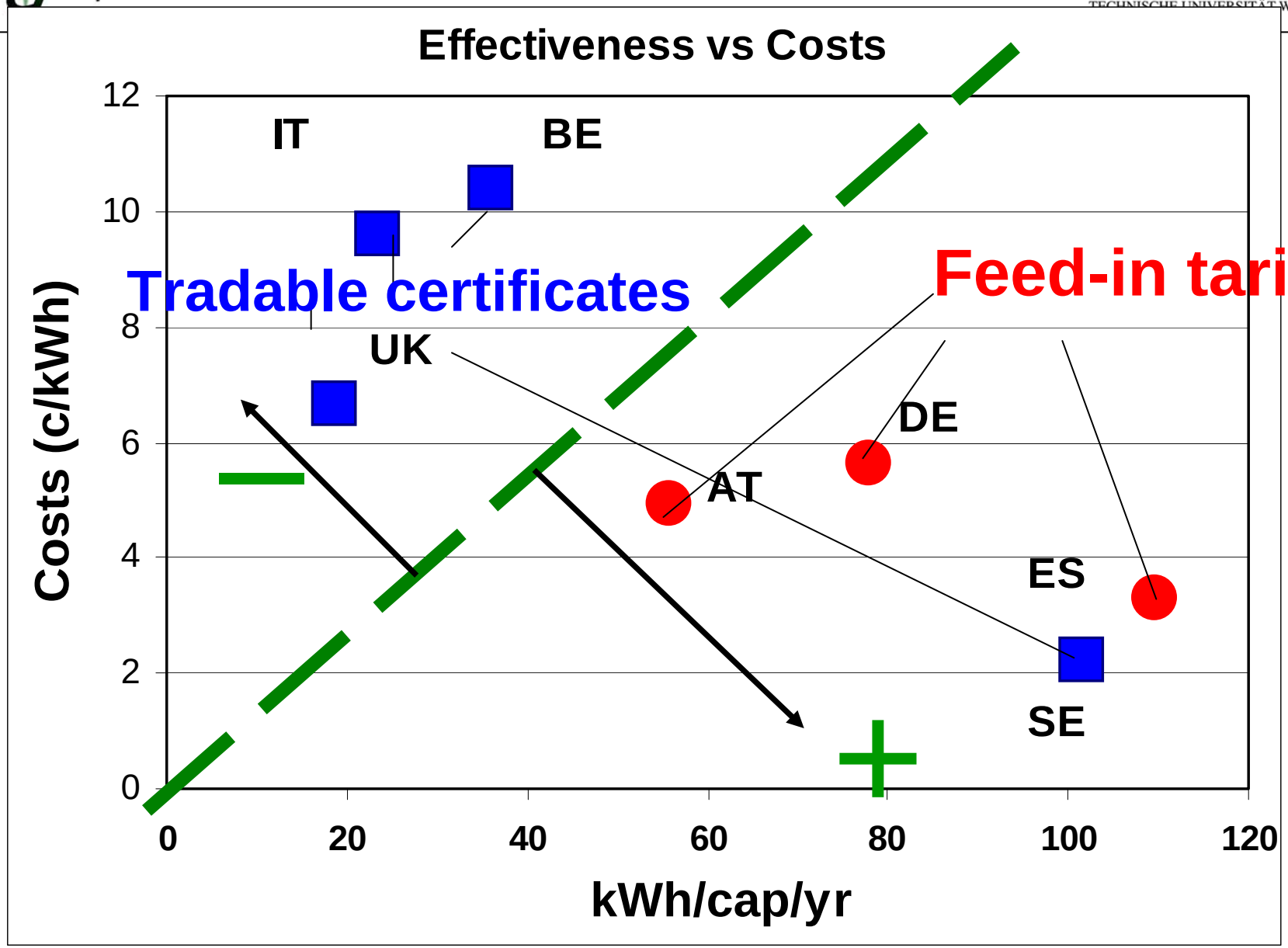
- **with respect to:**
- **which targets to be reached when and where?**
- **Financial incentives**
- **Credibility for investors**

SUCCESS CRITERIA FOR STRATEGIES



Major objectives:

- **increase the amount of electricity from *renewables* and**
- **reduce costs!**

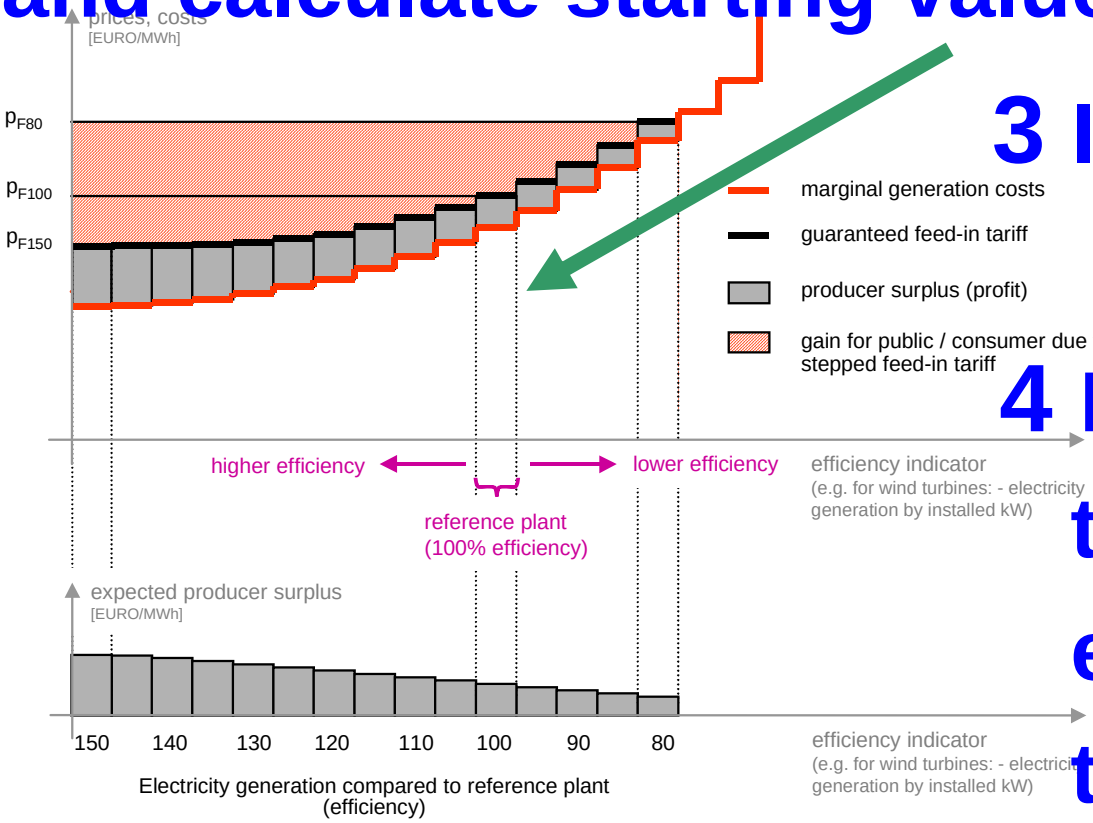

Effectiveness vs Costs
Costs (c/kWh)
kWh/cap/yr
0
2
4
6
8
10
12
0
20
40
60
80
100
120
IT
BE
UK
AT
DE
ES
SE
Tradable certificates
Feed-in tariffs

However: for developing countries we cannot restrict the discussion on price-based vs trading-based systems!

3. WHERE ARE FIT'S A PROPER STRATEGY?

1 FIT today are a mature promotion scheme

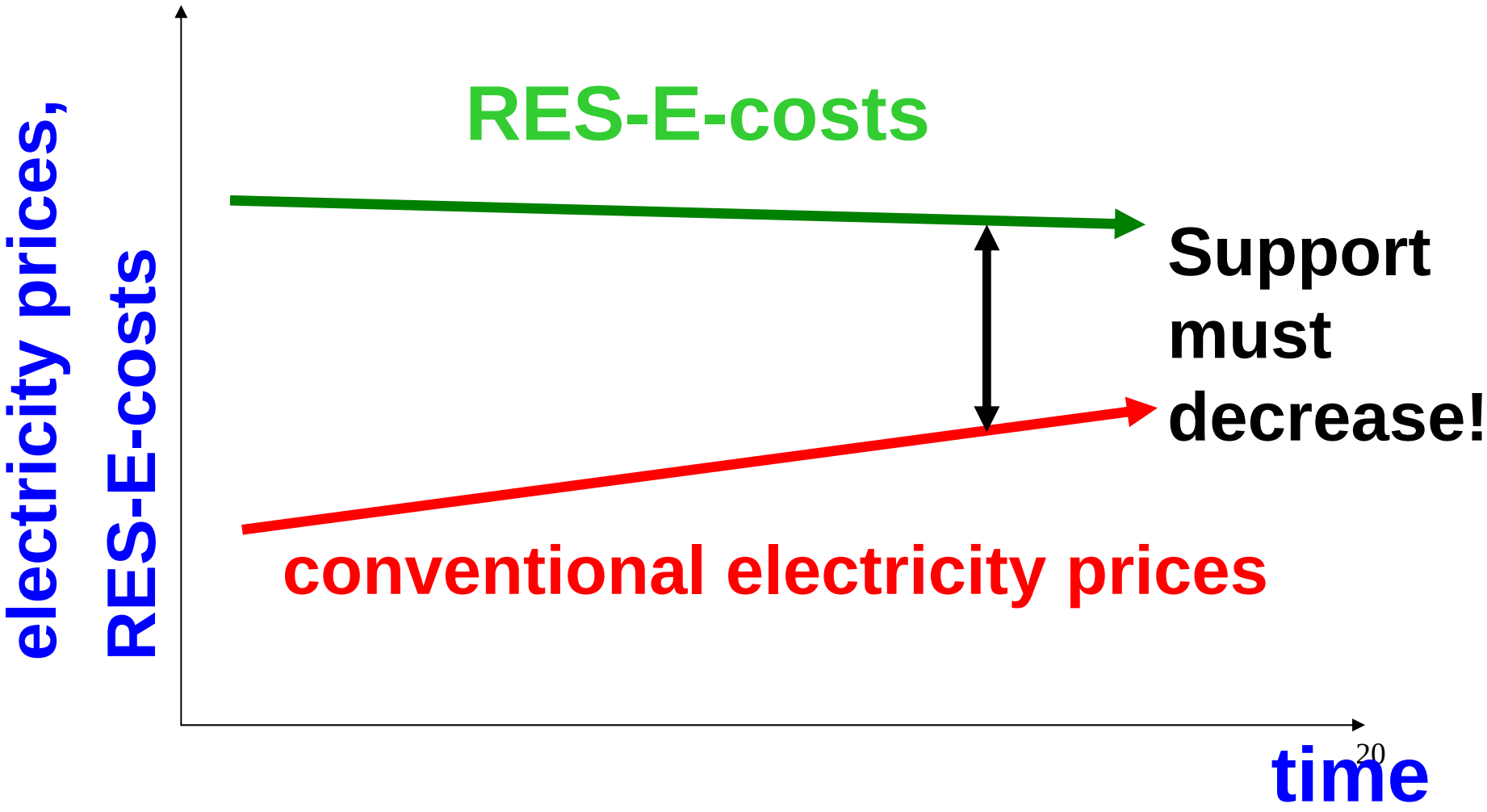
2 Use of a technology-specific stepped FIT and calculate starting values carefully



3 Identify ecological bonus

4 Decrease over time, link to conv. electr. prices & technol. progress

DYNAMICS:

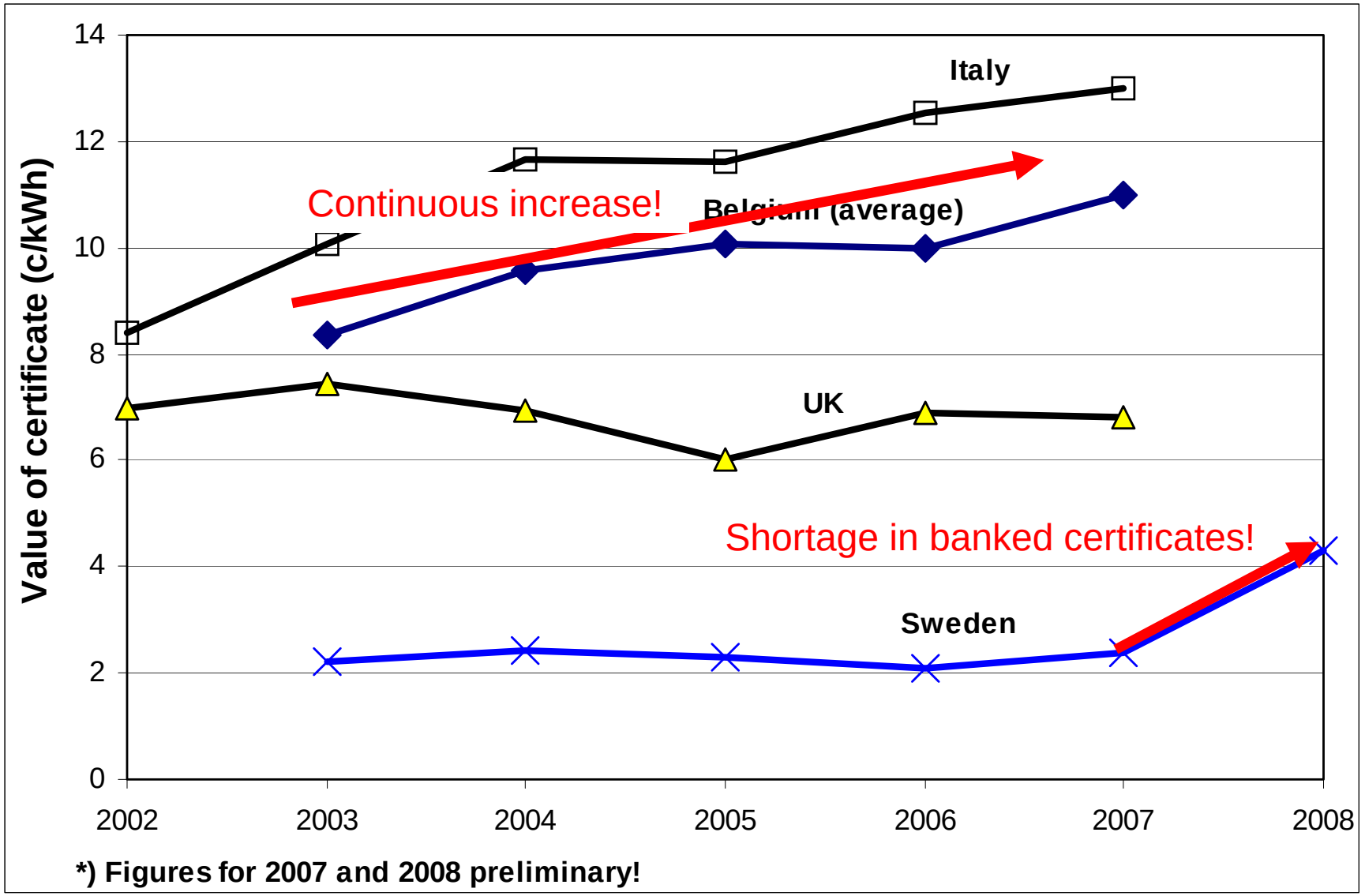

RES-E-costs
Support must decrease!
conventional electricity prices
electricity prices, RES-E-costs
time

However: for developing countries we cannot restrict the discussion on price-based vs trading-based systems!

4. WHAT ARE THE PROSPECTS FOR A WORLD-WIDE TRADING SYSTEM (IN ADDITION TO THE C D M) ?

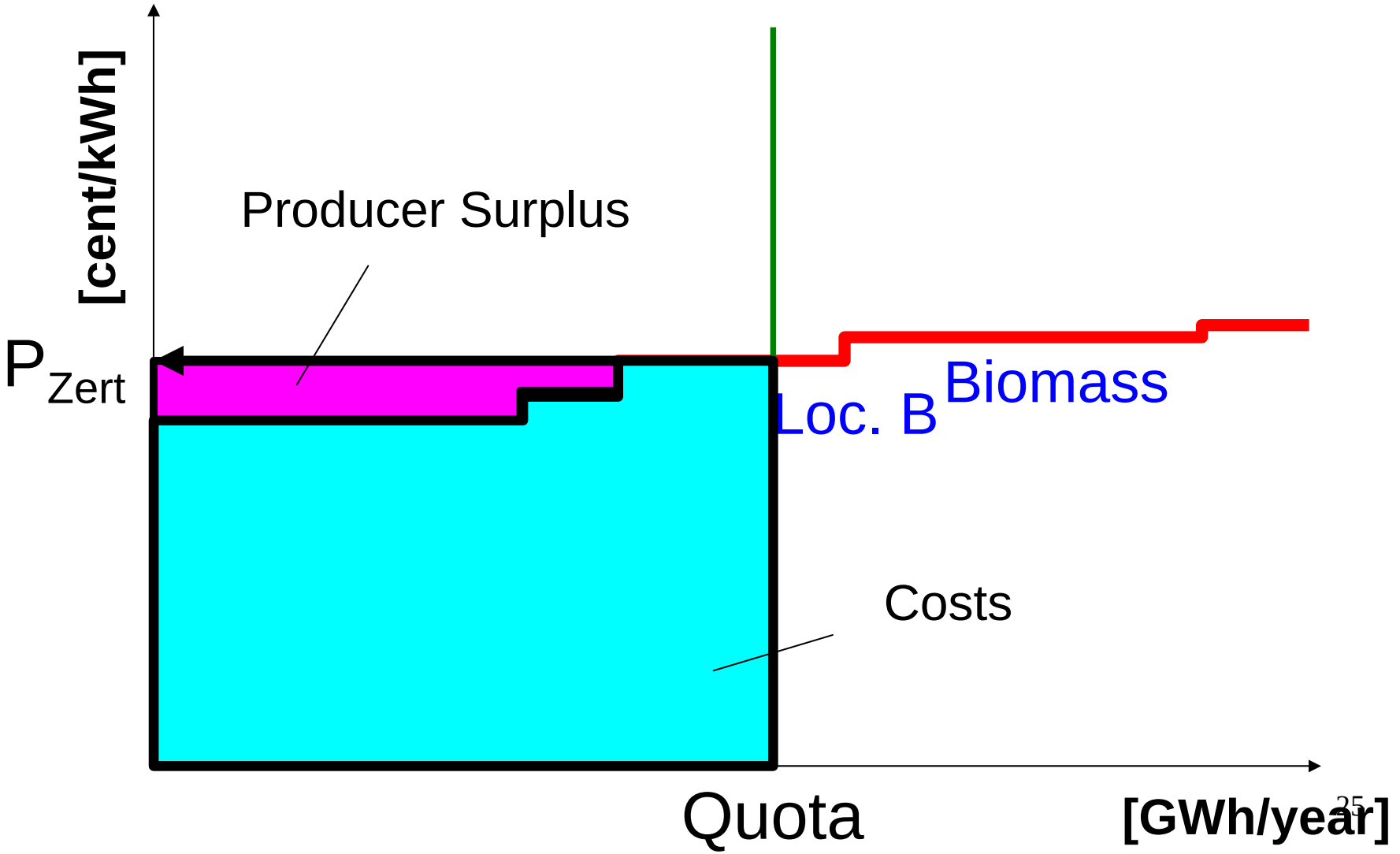
Basic idea: If investments in RES somewhere world-wide qualify for a quota e.g. in the EU this could be the cheapest way to increase the share of RES and to reduce CO2-emissions world-wide

PRICES OF CERTIFICATES



*) Figures for 2007 and 2008 preliminary!

IMPACT OF THE SHAPE OF THE COST CURVE



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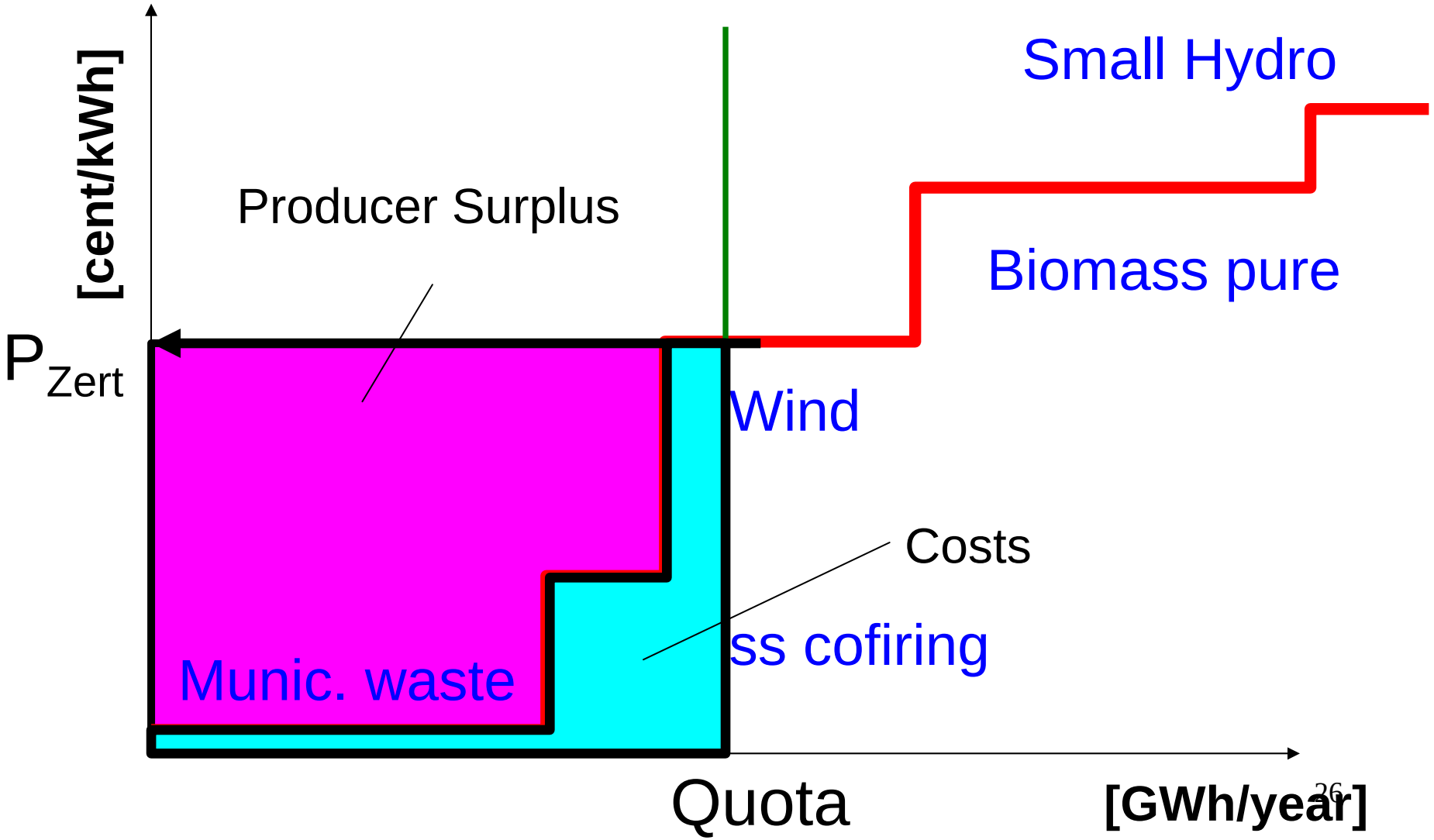

THE SHAPE OF THE COST CURVE E U - 27

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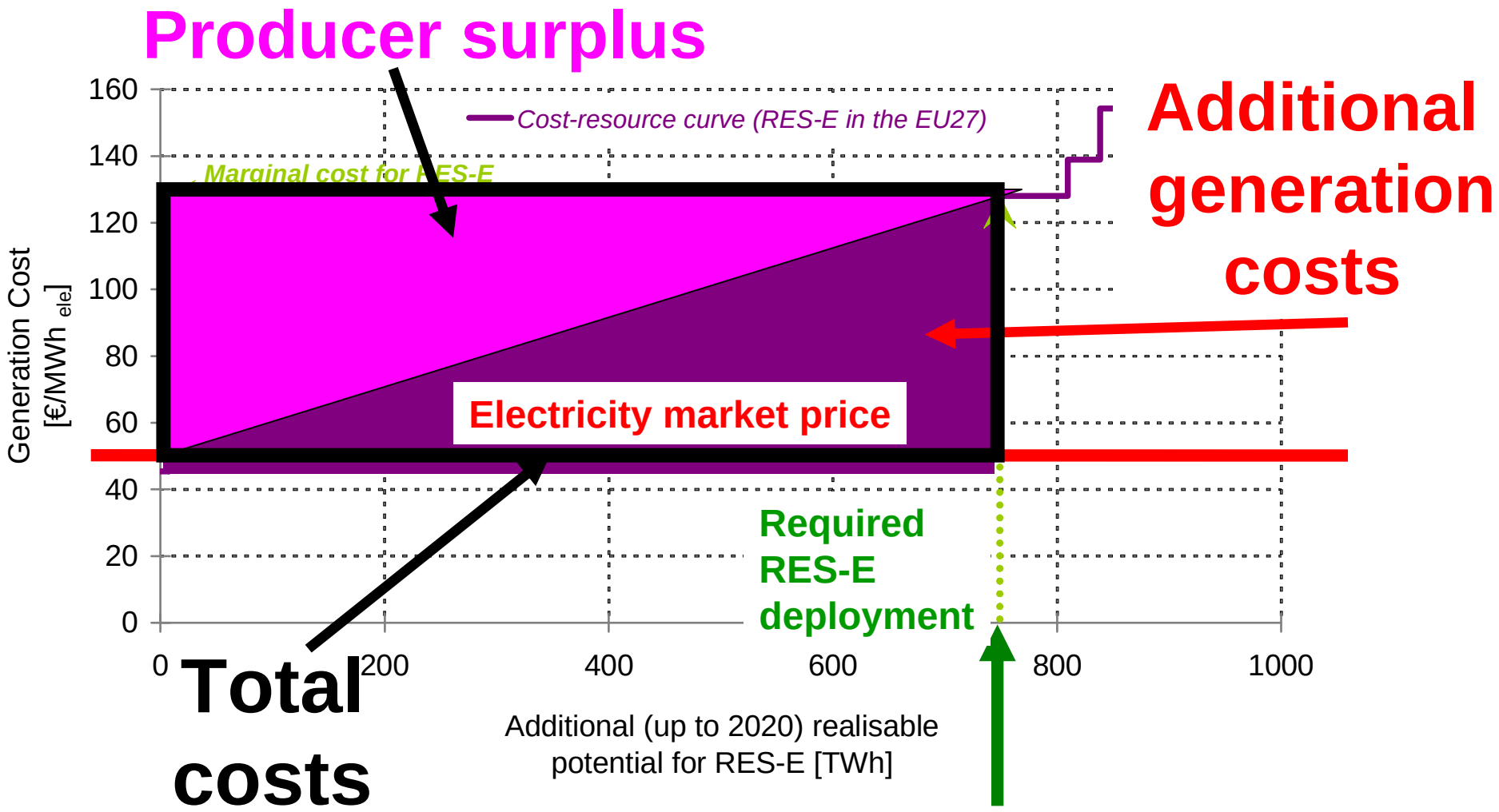
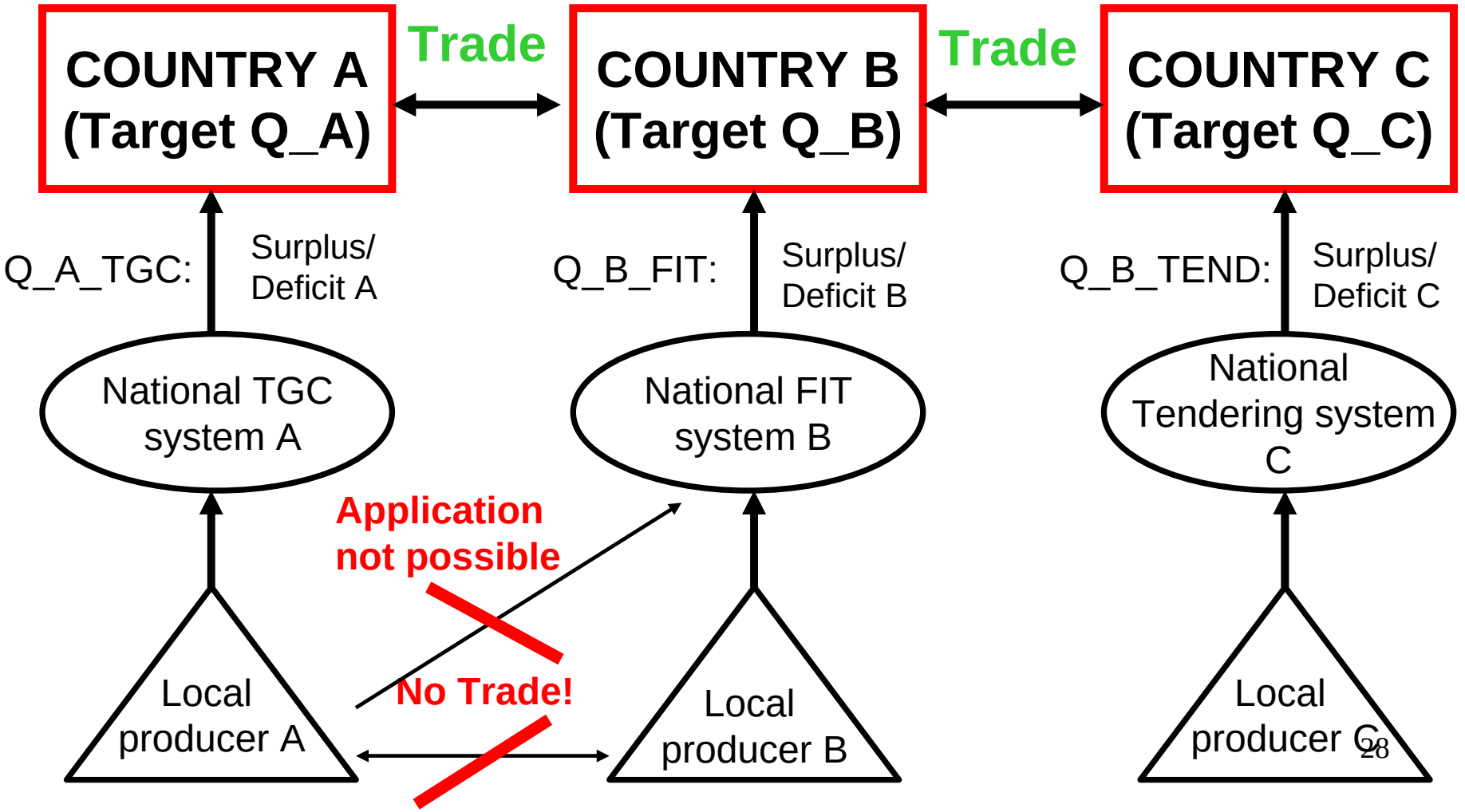
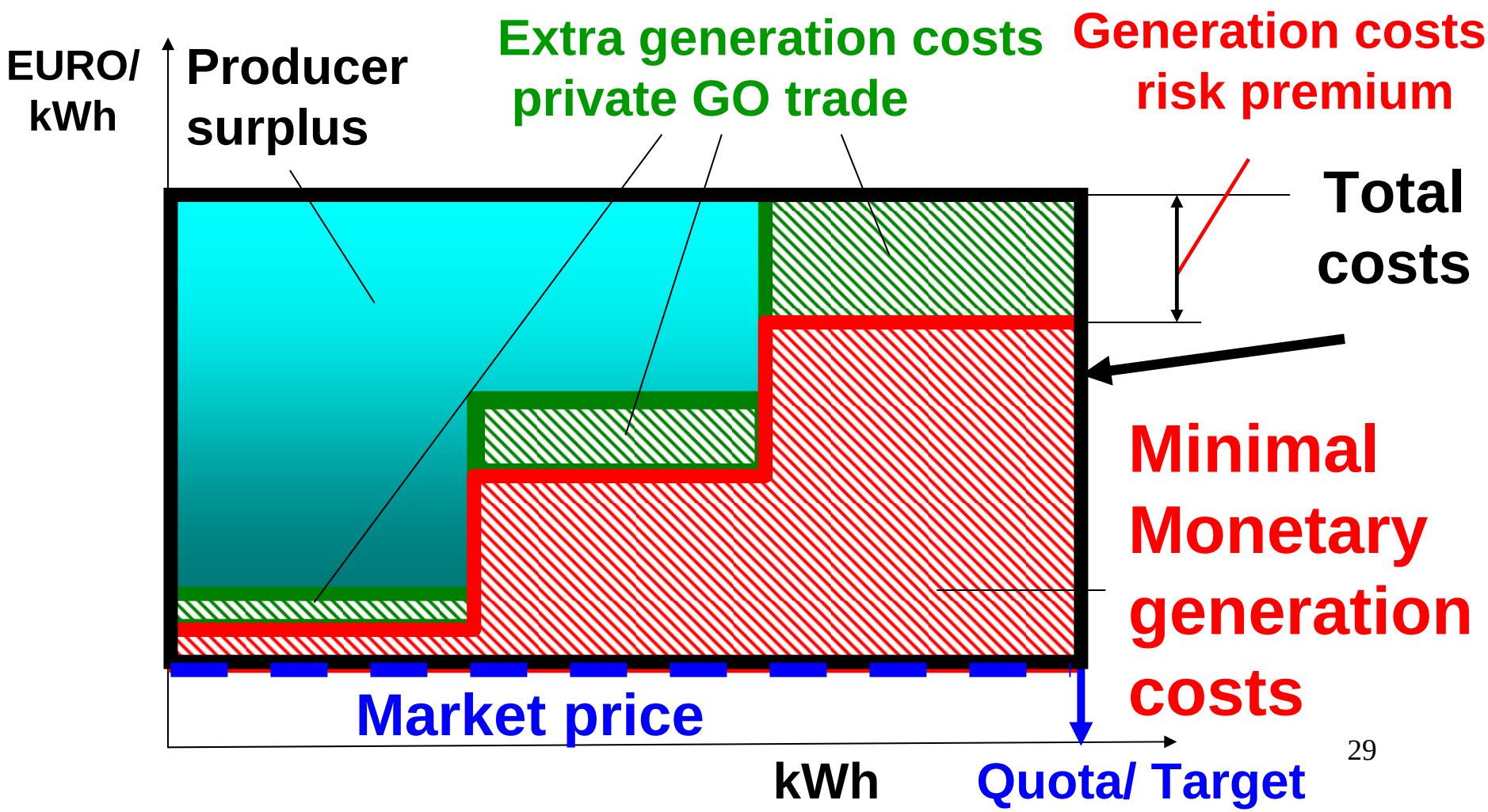


G O – TRADE BETWEEN MEMBER STATES



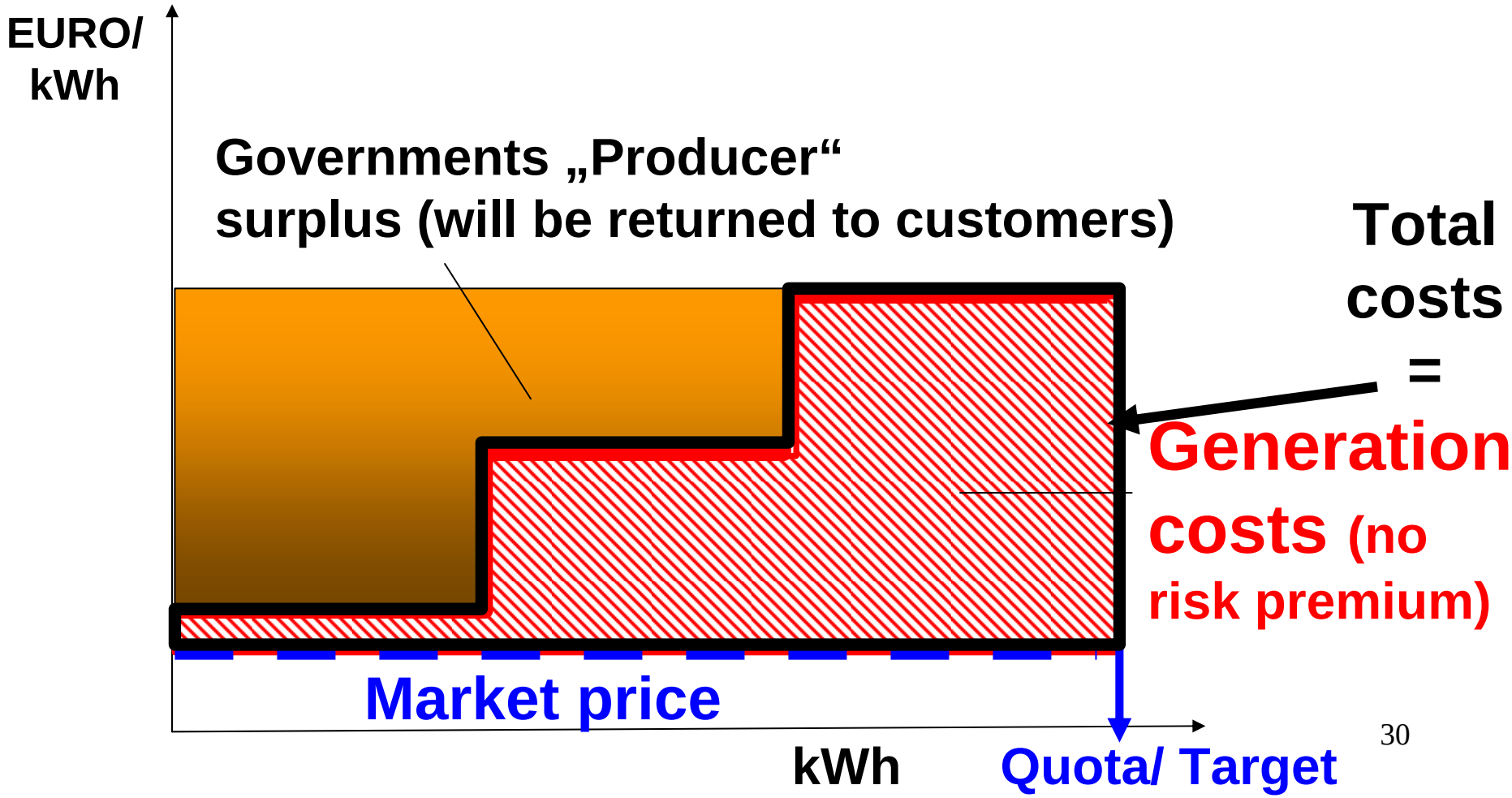
Total customer costs –

Private GO trade



Total customer costs –

Government GO trade



WHY IS EFFICIENCY OF QUOTA-BASED TGC'S LOW?

1 Low credibility → risk premium!

2 Planning horizon (validity period of certificates) too low!

3 Few players dominate the markets

5 PROSPECTS & REQUIREMENTS FOR EFFECTIVE PROMOTION OF R E S IN DEVELOPING COUNTRIES

ELECTRICITY CENTRAL:

- huge risk-related internat. Investments needed!
- opportunity for intern. revenues (royalty!)

ELECTRICITY DE- CENTRAL:

- Remove existing tax barriers!
- Intern. Financing support for investments required

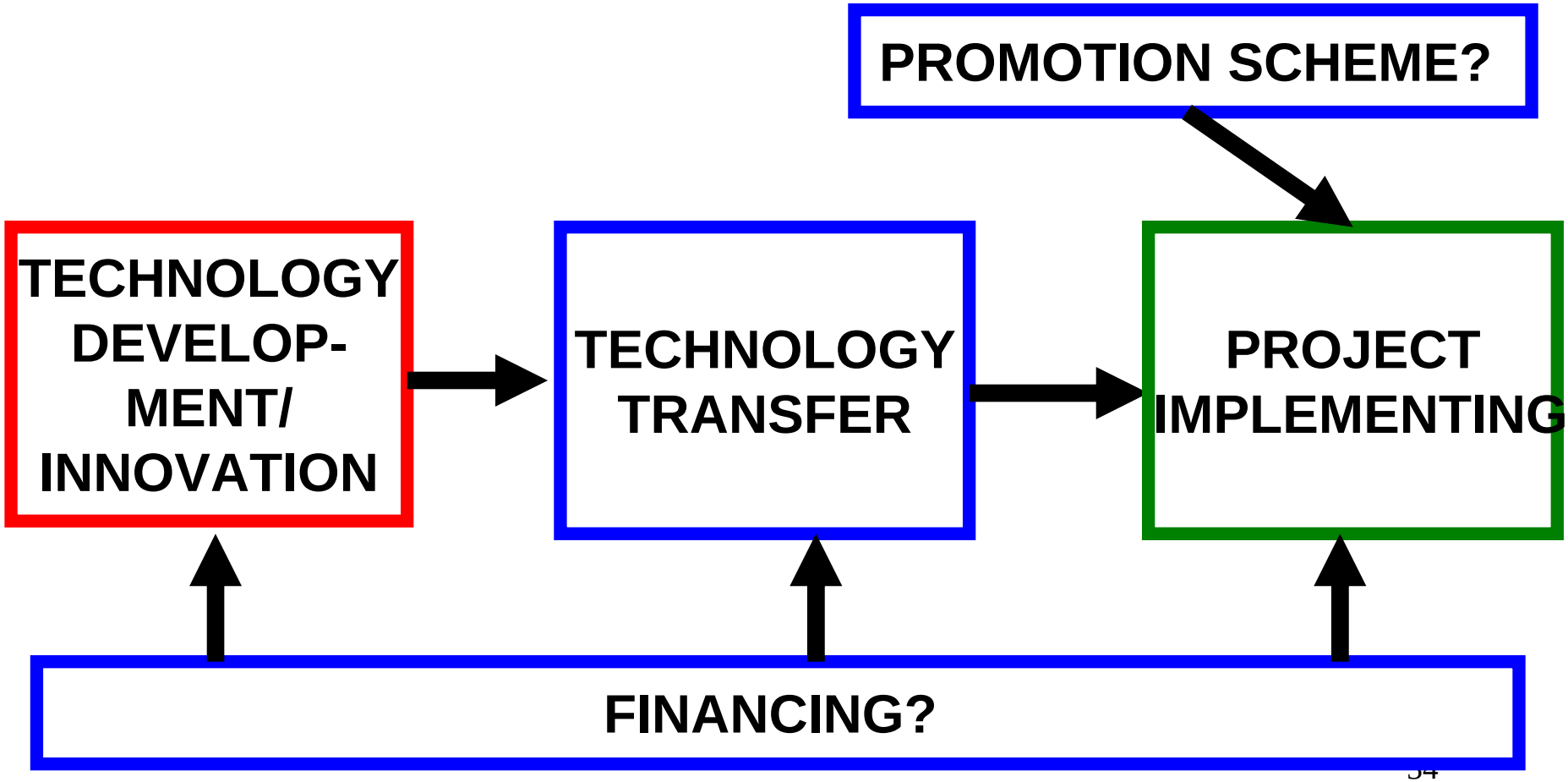
BIOFUELS:

- opportunity for creating Bottom-Up economy
- technology transfer for growing feedstock

HEATING:

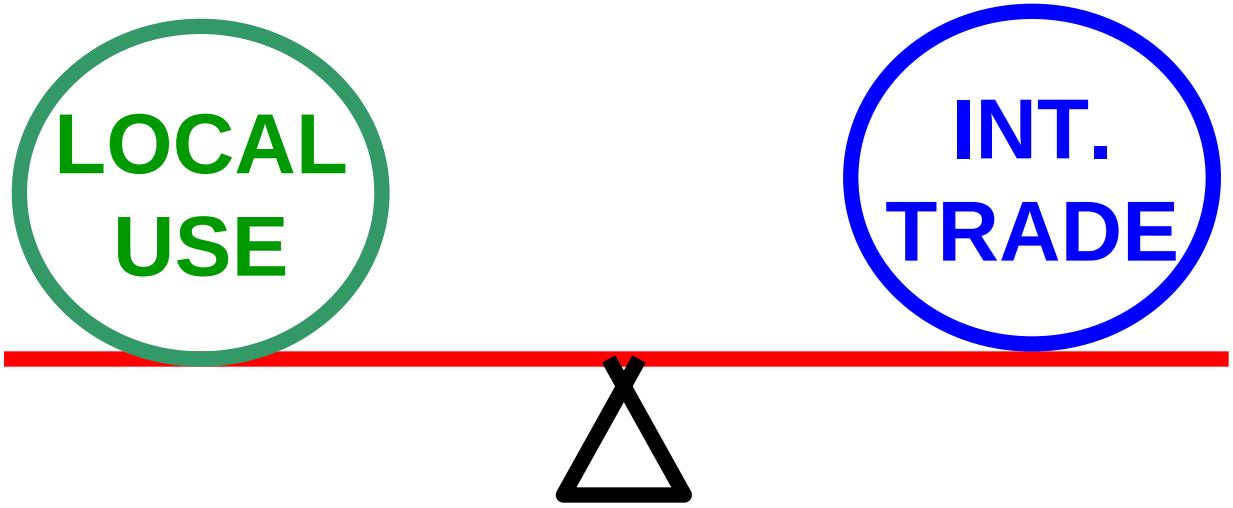
- Joint technology development
- Intern. Financing progr. for investments

LONG-TERM STRATEGY /DEVELOPMENT



IMPORTANT FOR ELECTRICITY AND BIOFUELS:

BALANCE BETWEEN :



LOCAL USE: CHEAPER AND MORE EFFICIENT (NO TRANSPORT LOSSES)

6. CONCLUSIONS

- FIT (with a dynamics towards market-oriented premium systems) will work in emerging countries
- Trading systems might work for flat cost curves (within the system borders) and low risk investment;
- Major focus on technology transfer (e.g. Feedstock) and technology development cooperation (“solar cooker”)
- Clarify recipient of major benefit! Dev. Country or Industr. country?

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