



# Action Plan - Recommendations

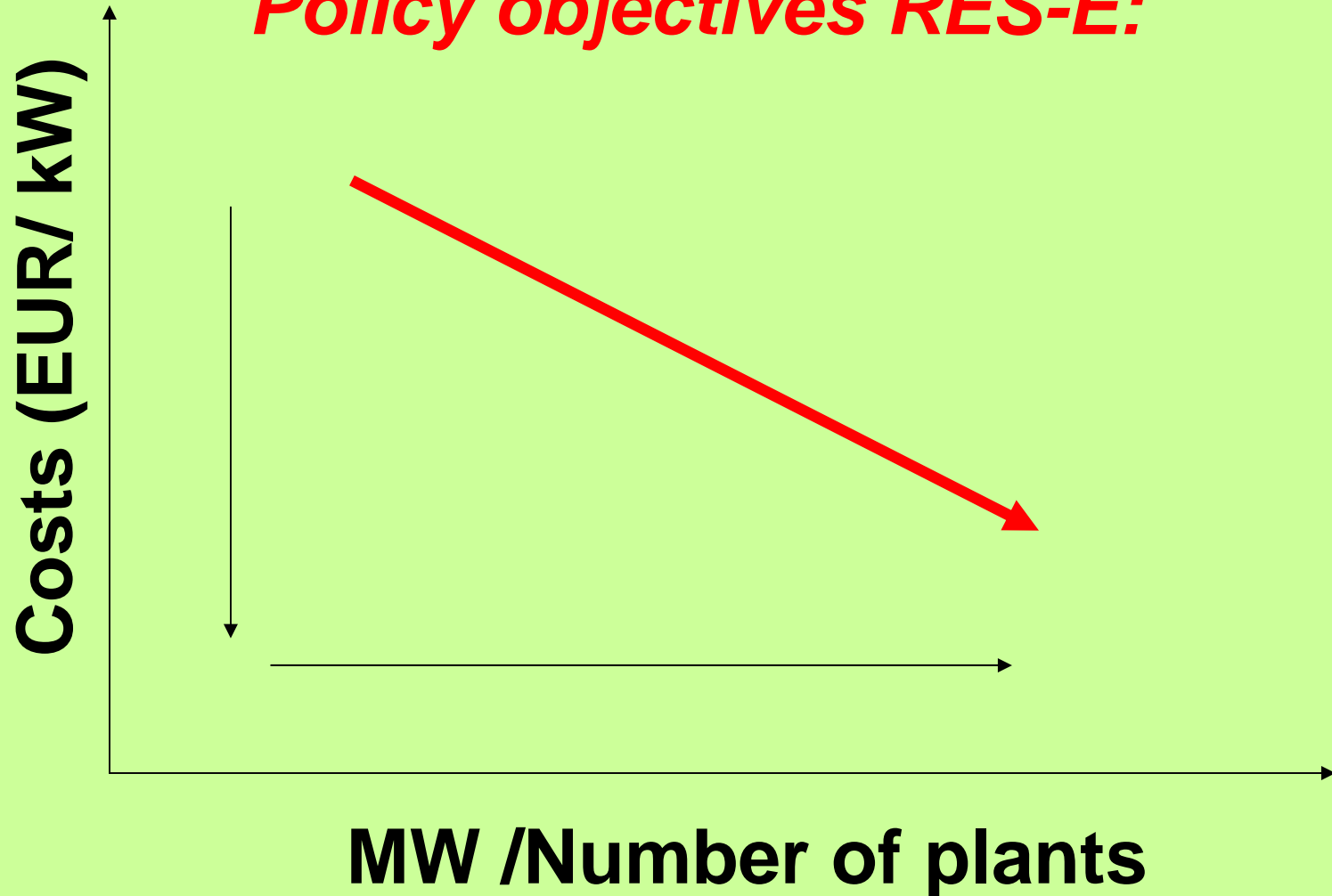
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# Overview

- Introduction
- Which instrument fits best?
- Harmonisation of RES-E policies?
- General conclusions

## ***Introduction***

***Policy objectives RES-E:***



## ***Introduction***

### ***Current policy objective RES-E Directive (2001)***

- + **Increase the share** of green electricity from 14% to 22% of gross electricity consumption by 2010
- + Directive does **not** propose a **harmonised support** system for RES-E
- + **Assessment** of support mechanism taken by MS **up to 10/2005**
- + The Commission may, **if necessary**, propose a **support framework**

### **This framework should take into account:**

- + **compatibility** with the principles of the internal electricity market
  - + technical and geographical features of RES
  - + the simple and **efficient promotion** of RES
  - + **investors' confidence** (e.g. transition period 7 years)
- } **Issue of design**

## ***Which instrument fits best?***

Should RES-E  
technologies be  
promoted on a broad  
scale?

***Answer depends  
on  
POLICY  
OBJECTIVE***

## Should RES-E technologies be promoted on a broad scale?

### Promote only the cheapest technologies

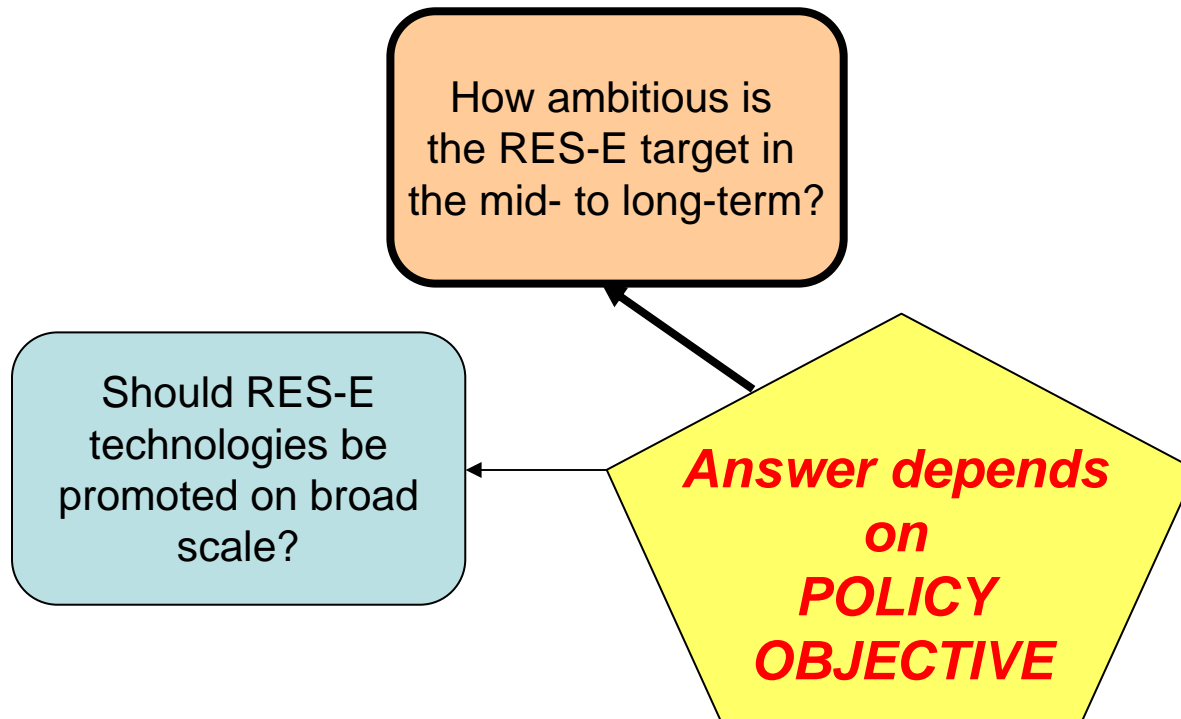
- + cost reduction of already most cost efficient technologies (facilitate breakdown to competitive market prices)
- + low generation costs (in the early phase of the system)
- + less complex system

### Promote technologies on a broad scale

- + stimulation of less mature technologies
- + high deployment rate possible
- + lower transfer costs for consumer in the long-term
- + lower generation costs (in the later phase of the system)

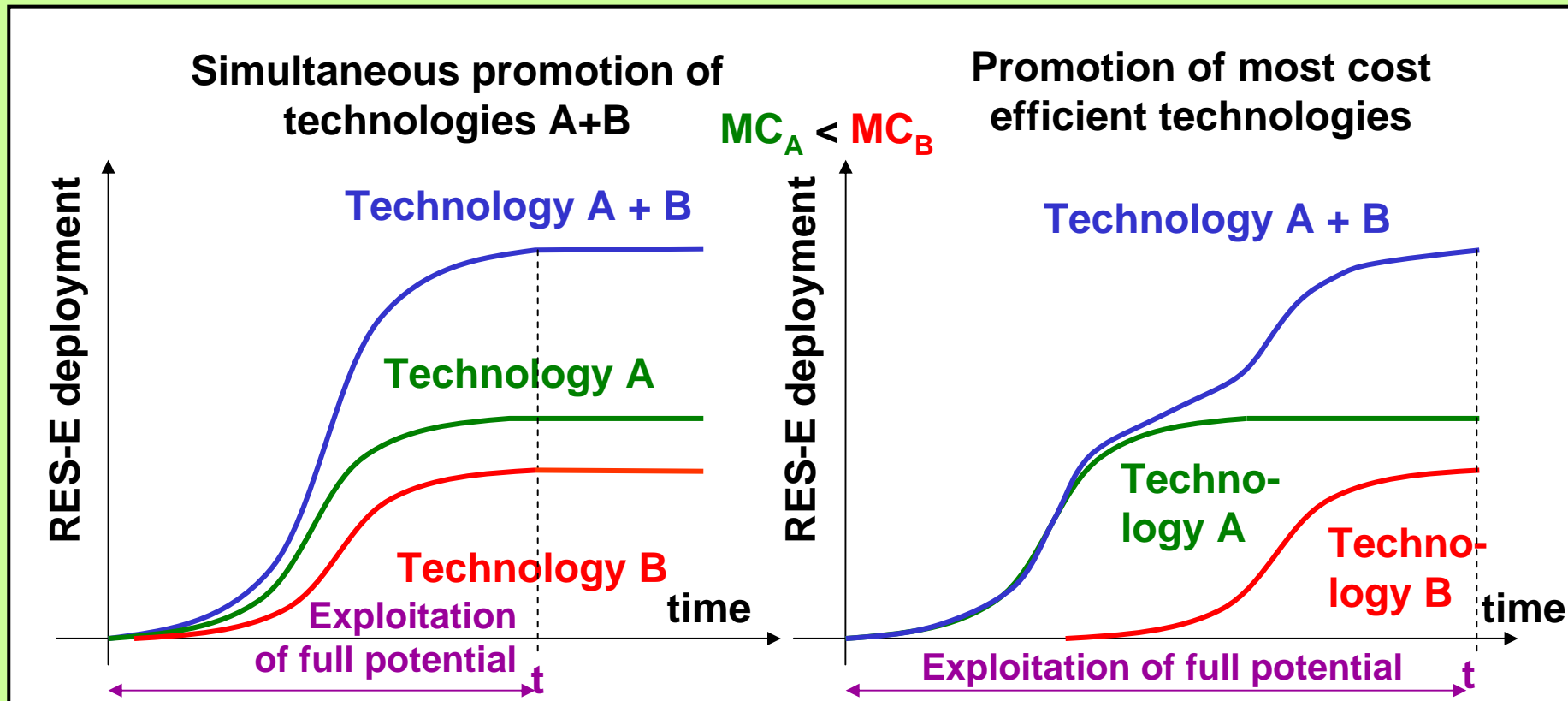
**Ability to split the support depends on the policy instrument (FIT: high, tender: medium, TGC low)**

## ***Which instrument fits best?***



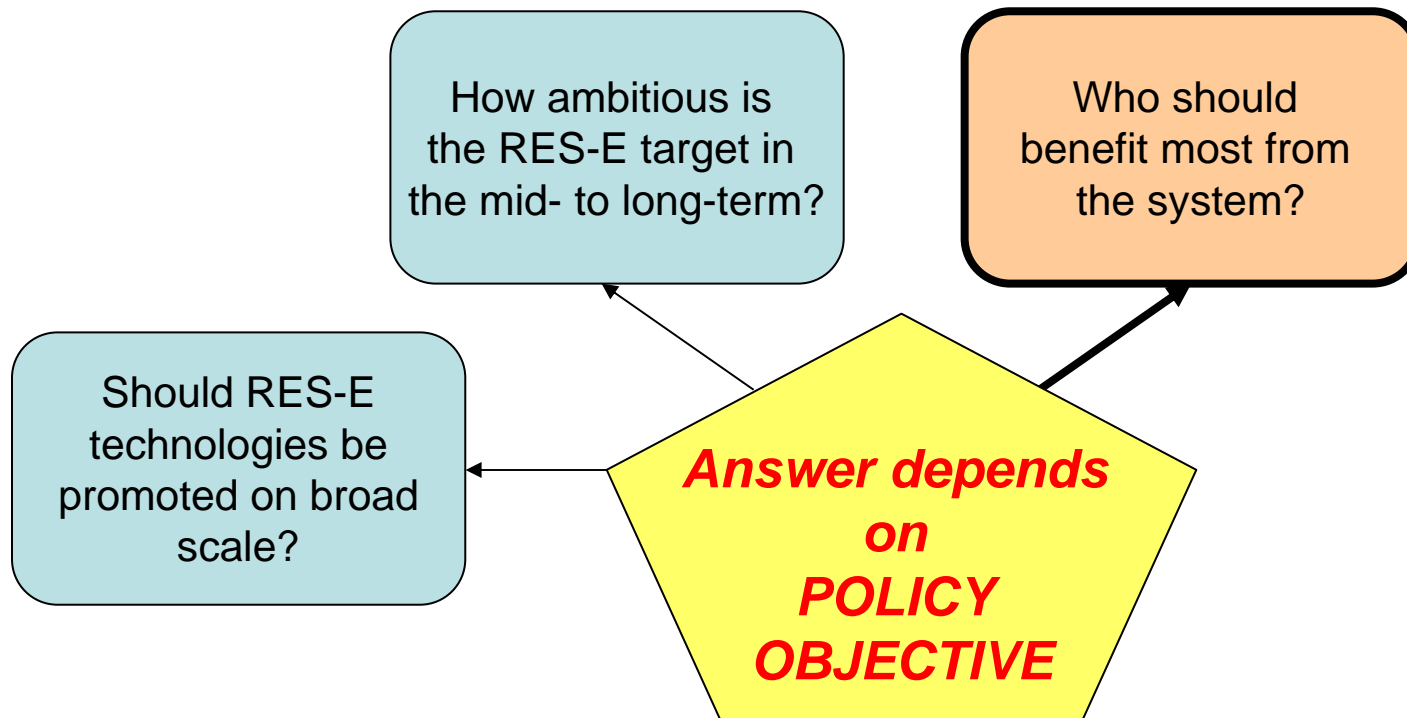
# How ambitious is the RES-E target in the mid-to long-term? How fast should the growth of RES-E deployment be?

An ambitious RES-E deployment in the long-term can only be reached with low costs if different technologies are supported simultaneously

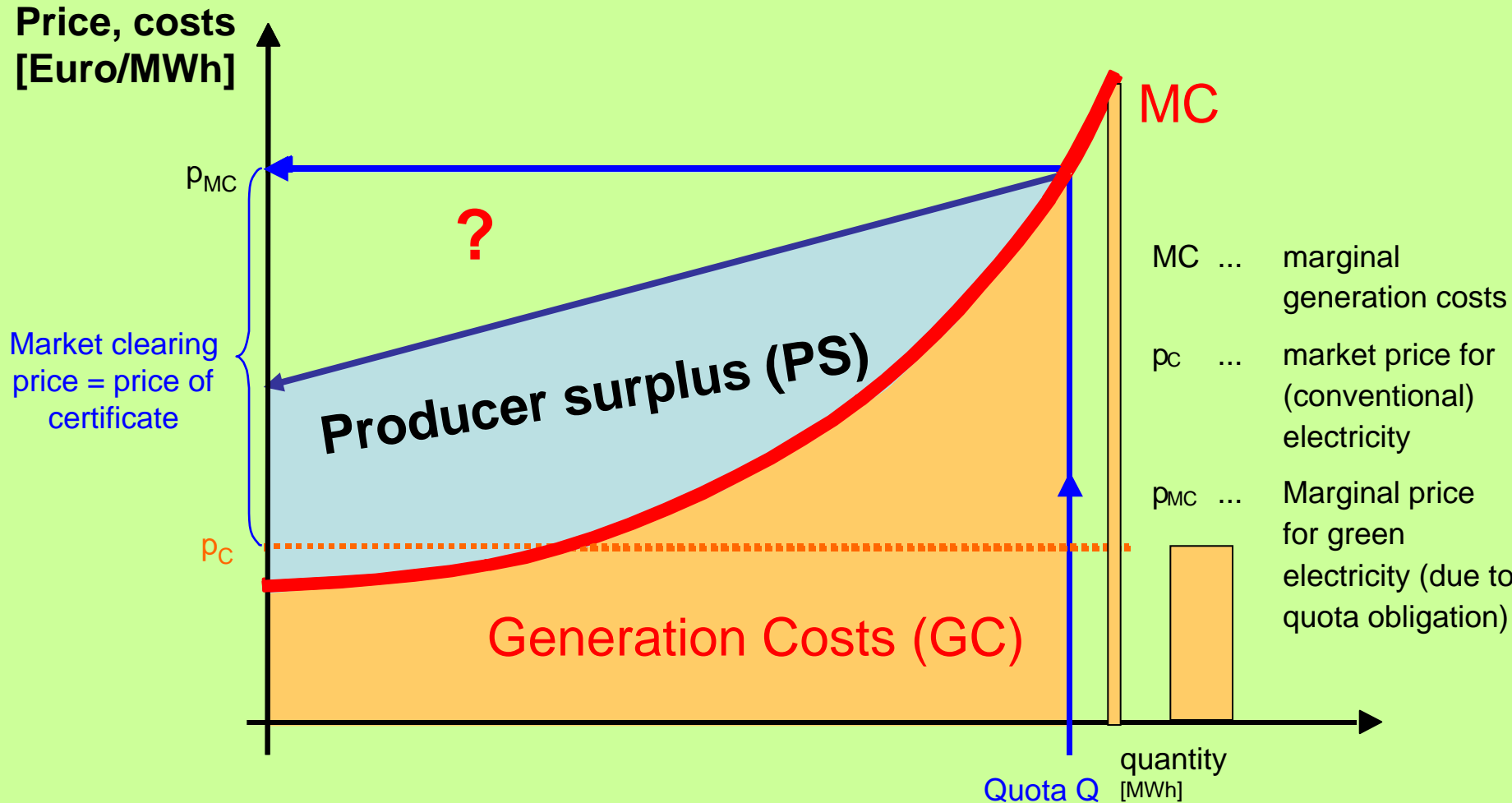




## ***Which instrument fits best?***



## Method of approach



Transfer costs for consumer  
(additional costs for society)

$$= PS + GC - p_C * Q$$

**Who should  
benefit most?**

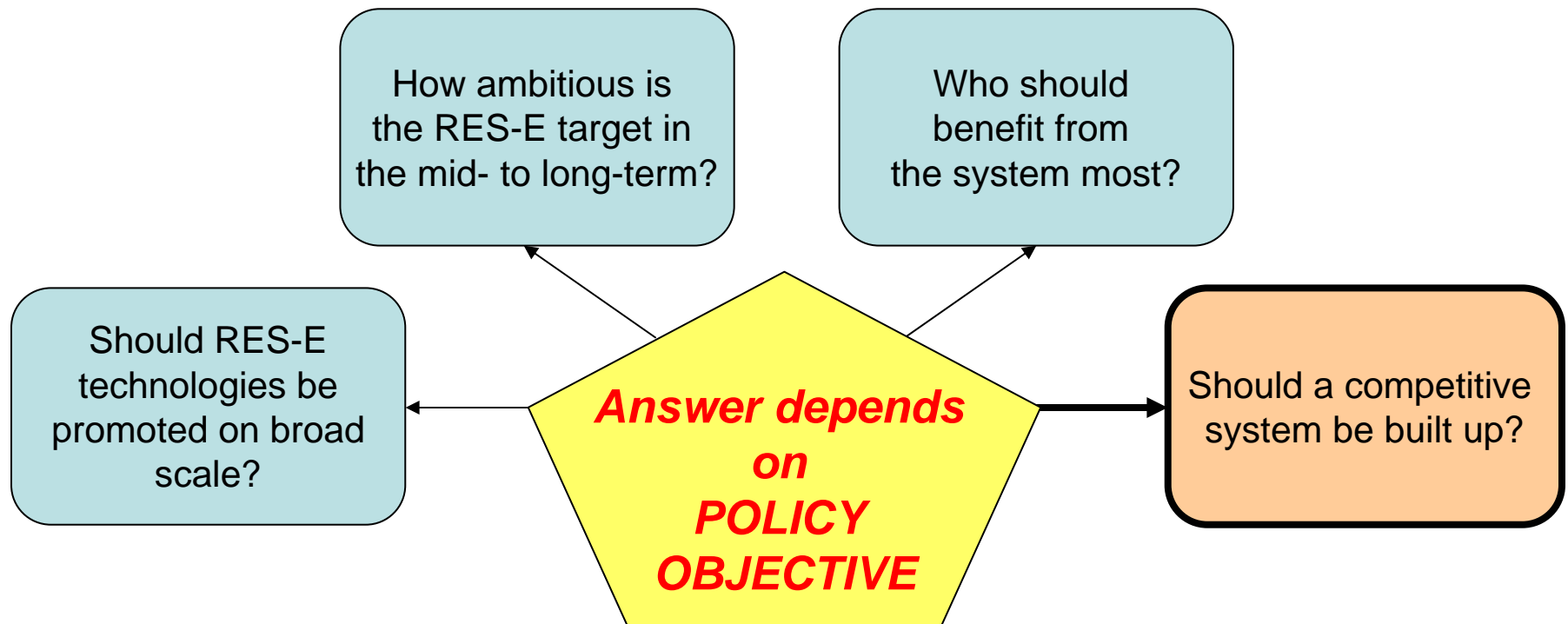


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graph TD; A[Who should benefit most?] --> B[Consumers: FIT scheme (in most cases)]; A --> C[Investors: TGC for cheap options, FIT more expensive options];
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**Consumers:**  
FIT scheme (in most cases)

**Investors:**  
TGC for cheap options  
FIT more expensive options

## ***Which instrument fits best?***



# Should a competitive system be built up?

## Should competition between generators be enforced?

Competition depends on market volume, competitors (national / international), transparency, etc.

TGC system, tender scheme or a combination of both;

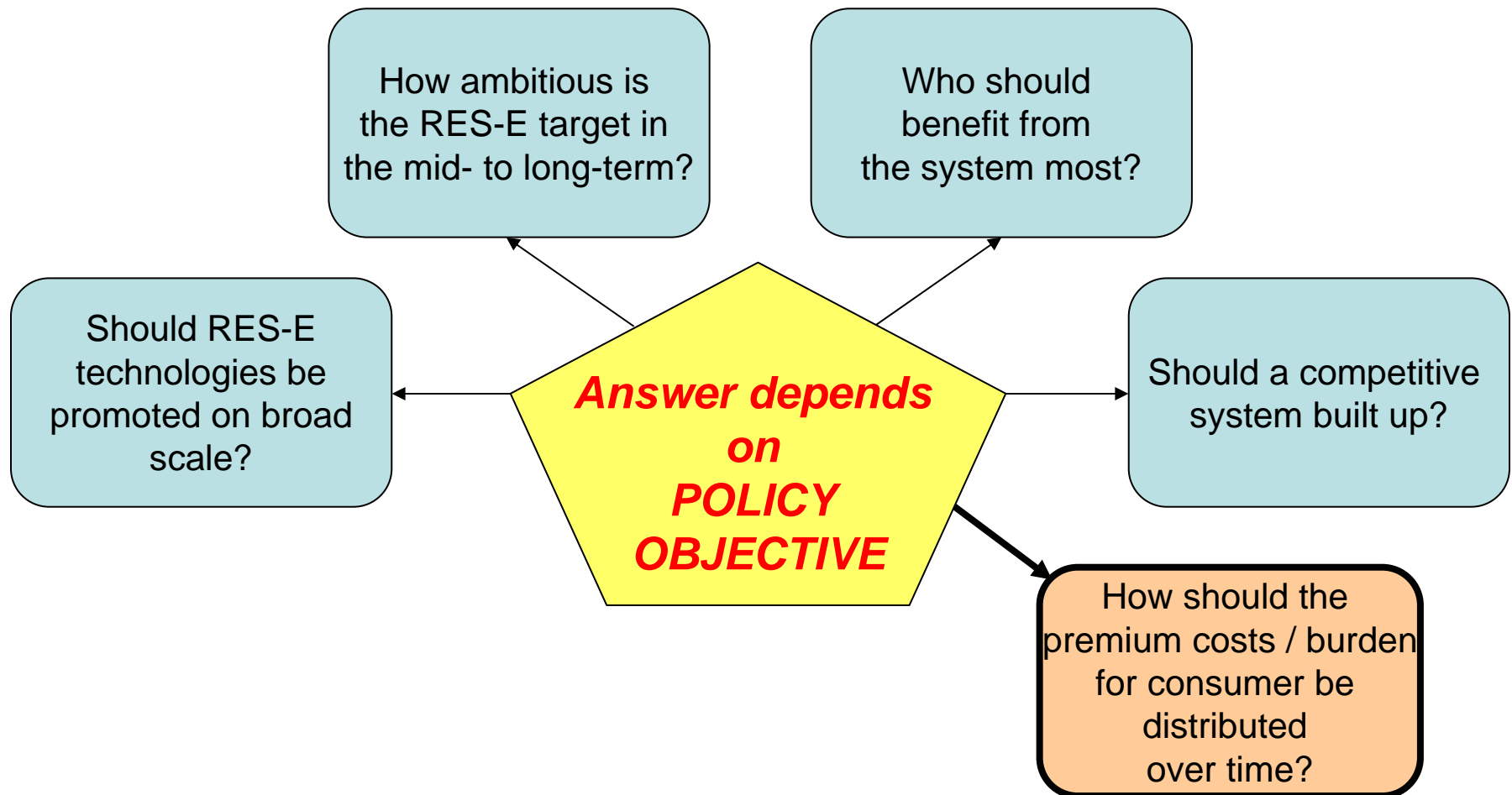
## Should competition between manufacturers be fostered?

Competition mainly independent from the support mechanism

TGC system, tender scheme:  
pressure to produce most cost efficient components

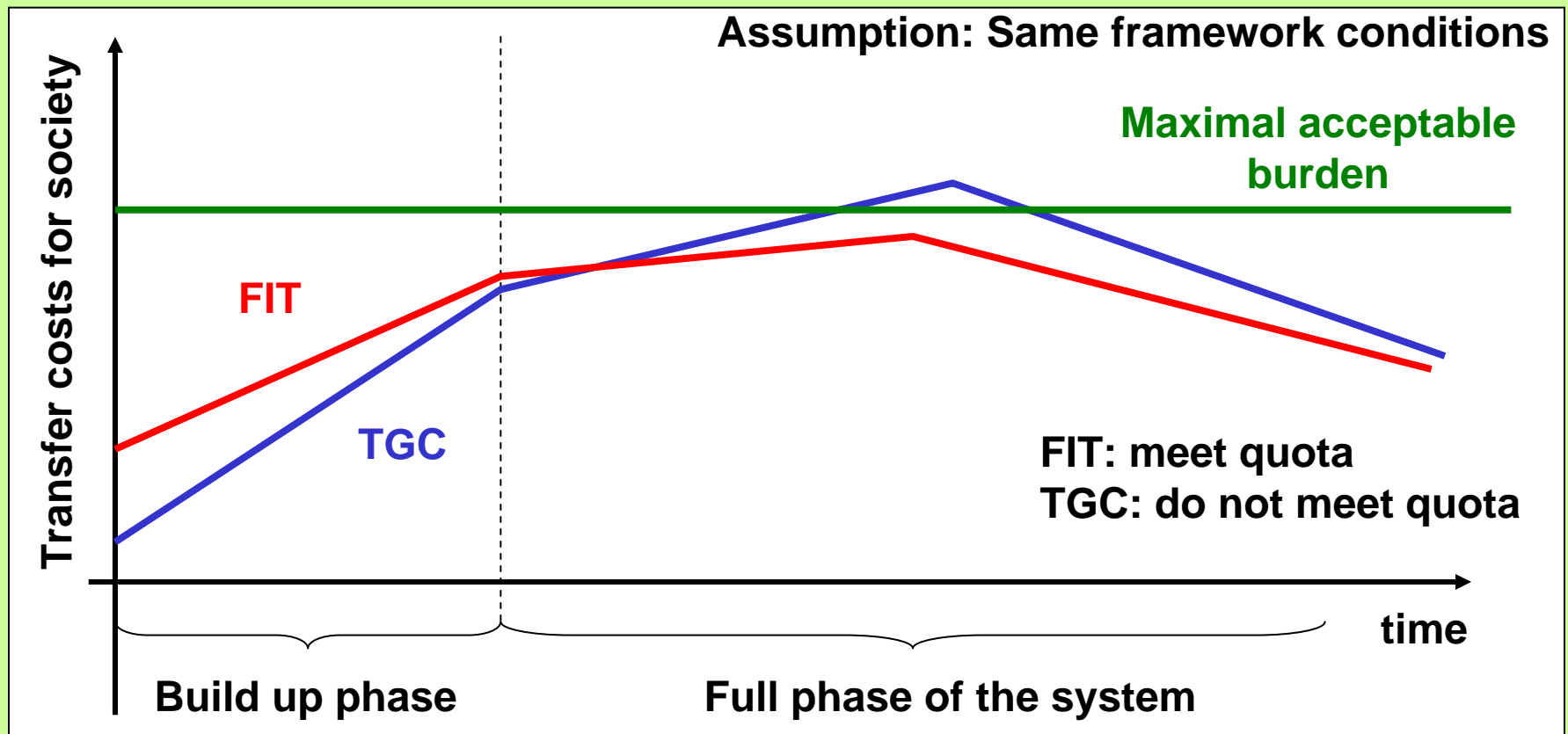
Feed-in tariff:  
pressure to provide high quality components

## ***Which instrument fits best?***

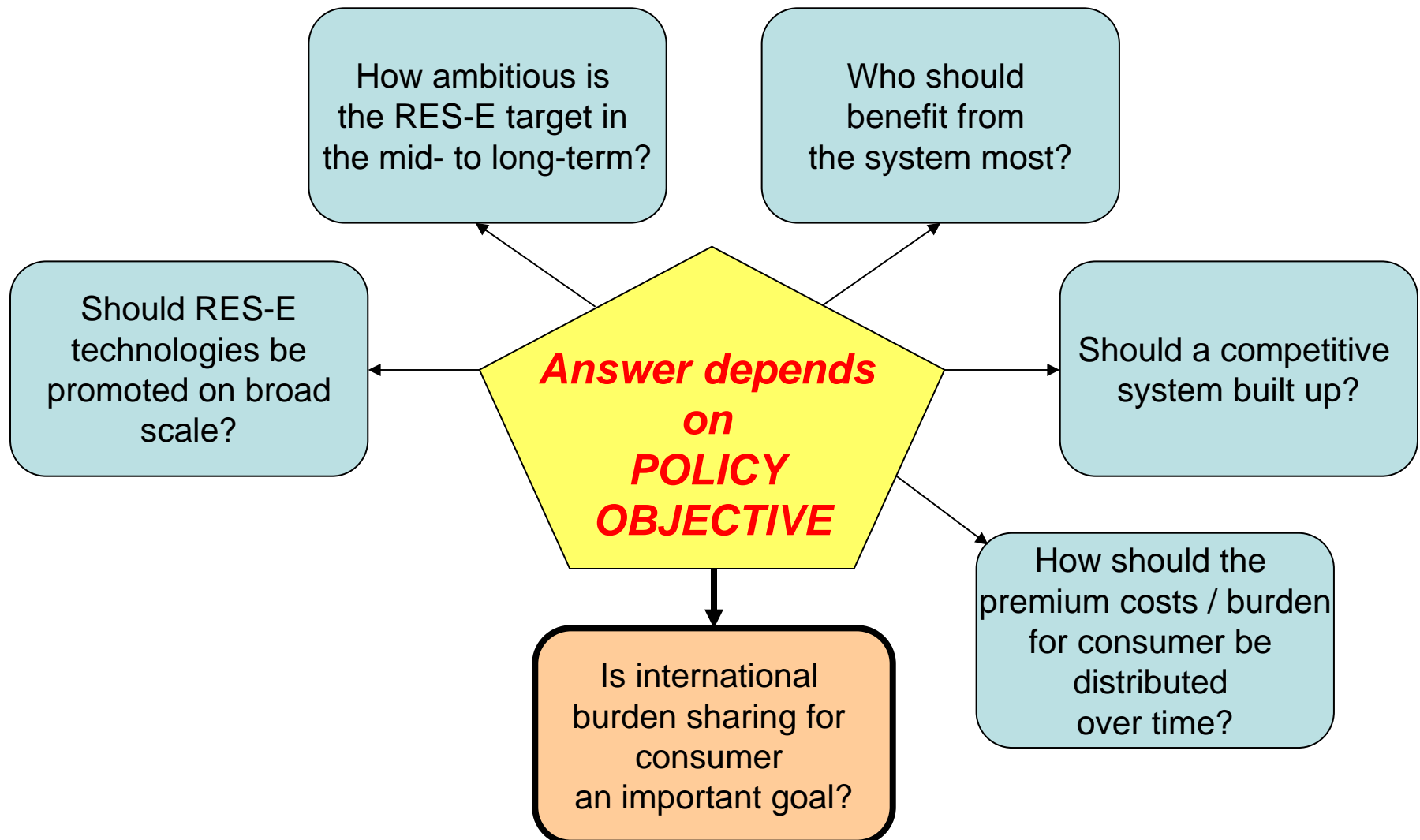


# How should the premium costs (burden) for consumer be distributed over time?

## Illustration transfer costs for society over time



## ***Which instrument fits best?***

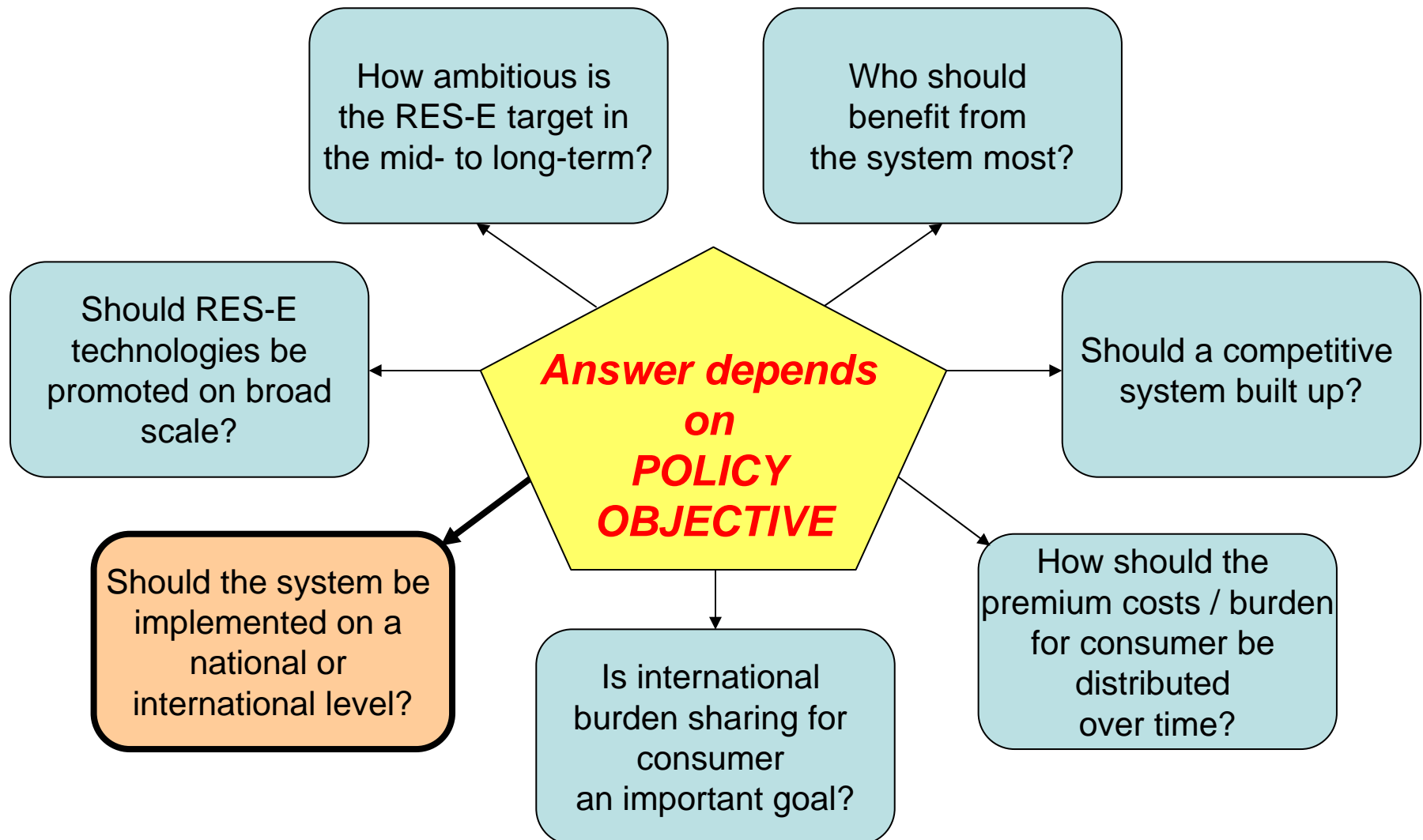




## **Is international burden sharing for consumer an important goal?**

- International TGC system:  
a homogenous and fair distribution of the RES-E costs (same transfer costs for society )among the countries (consumer) is possible if RES-E target is set equal among the countries  
Reason: Transfer costs for society depends on the (agreed) target
  - Feed-in tariff scheme, tender procedure and national TGC:  
reach a fair burden sharing among the countries requires a central cost balance system  
Reason: Transfer costs for society depends on the national RES-E generation (high actual deployment high, transfer costs for society)
- However: Additional benefits (regional development, employment, CO<sub>2</sub>-emissions, etc.) occur due to the actual RES-E deployment, which should be compensated too

## ***Which instrument fits best?***



# Should the system be implemented on national or international level

Important whether the power market is open or closed

## Open power market

No distortions occur for all investigated policy mechanisms

## Closed power market (limited interconnections)

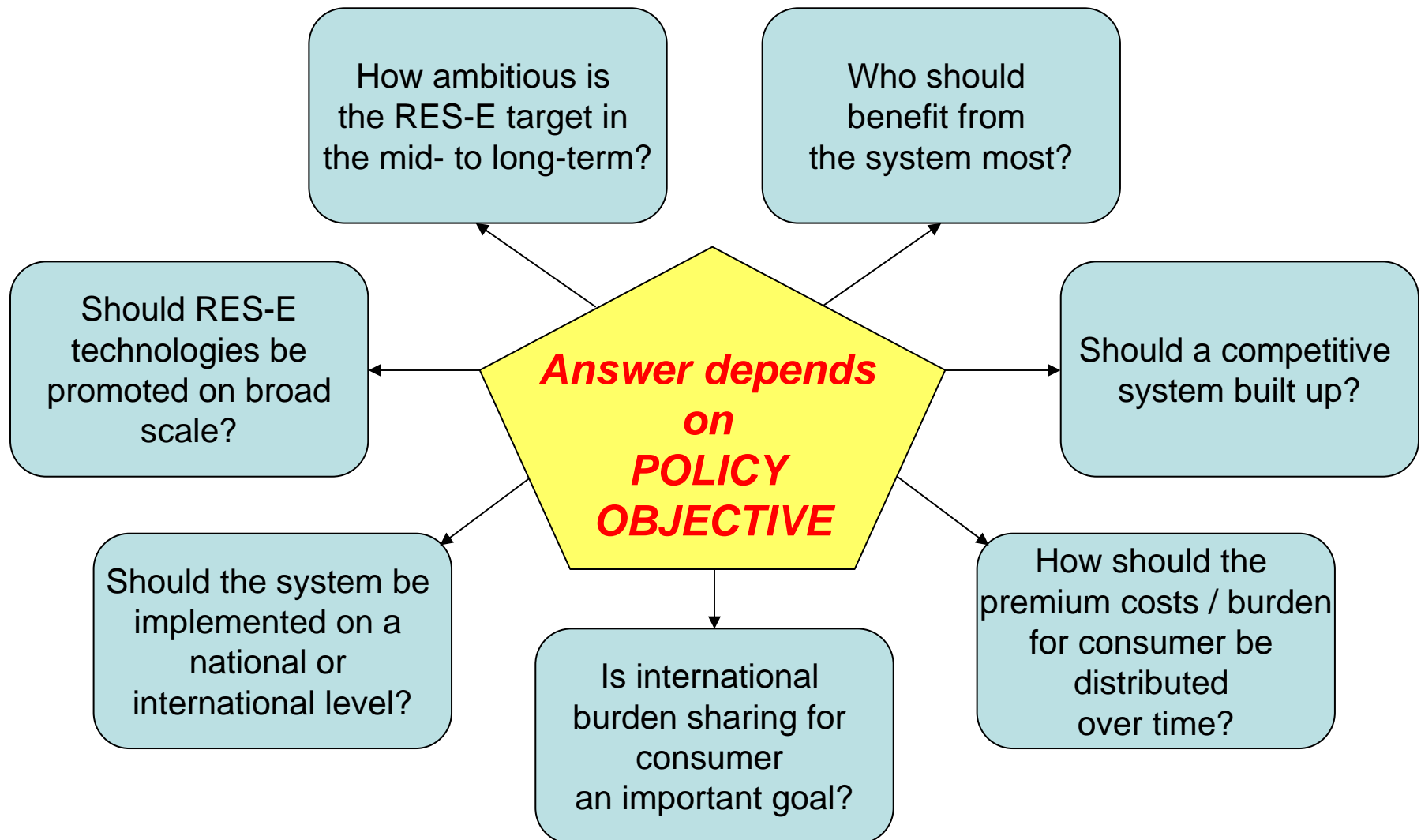
Distortions within an international TGC system / premium FIT

No distortion in the case of a FIT / tender scheme RES-E development is independent from the power market structure

Depending on the national (indicative) RES-E targets

On average EU countries gain from international system, however, some countries loose

## ***Which instrument fits best?***



## ***Summary - which instrument fits best to provide a RES-E deployment?***

| Policy issue  | Feed-in tariff | National TGC system | International TGC system | Tender procedure |
|---|----------------|---------------------|--------------------------|------------------|
| Ensure a broad RES-E technology portfolio                 | ++             | -                   | -                        | +                |
| Allow an ambiguous RES-E target in a short duration       | ++             | --                  | - / +                    | +                |
| Minimise generation system costs                          | -              | +                   | ++                       | -                |
| Minimise transfer costs for consumer                      | ++             | --                  | - / +                    | +                |
| Encourage competition between generators                  | -              | +                   | ++                       | ++               |
| Leads to a more homogeneous burden for consumer over time | ++             | --                  | - / +                    | +                |
| Can contribute to a fair international burden sharing     | -              | -                   | +                        | -                |

# ***How can a harmonised approach look like?***

Two options exist:

- **Full harmonisation**

If policy find a joint agreement, which policy objectives (discussed before) are most important and, hence, should be consequently realised, a full harmonised approach is preferable regardless which instrument is chosen

- **Sub-harmonisation**

If no joint agreement can be reached, a harmonisation of the general framework condition should be pursued

# ***How can a harmonised approach look like?***

**General rules  
(harmonised)**

**Framework  
conditions for  
Feed-in tariff**

**Framework  
conditions for  
TGC based  
quota**

**Framework  
conditions for  
Tender  
procedure**

## ***General rules***

- High investor confidence (stable planning horizon, predictability, creditability);
- Pursue a continuous RES-E policy (no stop-and-go nature);
- Existing capacities and new capacities should not be mixed;
- Financial support given by any instrument should be restricted to the same time frame (e.g. 13 years);
- Encourage competition among the manufacturers;
- Remove non economic barriers
- Compatibility with other policies (climate policy, agricultural policy, demand-side measures);



## ***Feed-in tariff***

- Use technology specific tariffs
- Apply a stepped feed-in tariff scheme (where appropriate)
- Consider dynamics! Tariffs should decrease over time when optimal time path for their implementation is reached;

## ***TGC based quota obligation***

- Ensure reciprocity of – mutually permitted
- Set correct penalty (higher than marginal production costs)
- Ensure a sufficient market size (try to form an international trading system)

## ***Tender procedure***

- Ensure a continuity of calls and predictability over time
- Set technology-cluster specific tender
- Call of right technology specific tender capacity is important
  - + Avoid to launch a too low capacity (monopolic or oligopolic structure)
  - + Avoid to launch a too large capacity (strategic bidding)
- For large projects predefined site, interconnection, etc.
  - + Lower transaction costs
  - + Co-ordinated development for capacity, grid

## ***Conclusions – RES-E policy instruments***

- There is no clear favoured support mechanism
- The design of a strategy is by far the most important success criteria!
- To ensure significant RES-E deployment in the long-term, it is essential to built up a broad portfolio of different technologies
  - To increase experience and confidence in new technologies. This issue is important to prepare the market for the case that these technologies should be used in the future.
  - Demonstrating the possibility is important for becoming market maturity (bank and risk assessment, learning of administrative burdens, etc).

## ***Conclusions – interactions***

- The achievement of most policy targets for RES-E as well as the accompanying transfer costs for society is closely linked to the development of electricity demand.  
Therefore, aside from setting incentives on the supply-side for RES-E, accompanying demand-side measures help to minimise the overall burden for consumer
- The future development of transfer costs for society due to the promotion of RES-E is significantly influenced by the further level of electricity prices on the conventional market.
- Harmonisation of framework conditions on EU level is favourable