

Policy Instruments to Support RE Industrial Value Chain Development (RE-ValuePolicies)

Integrated Policy Areas for Value Creation

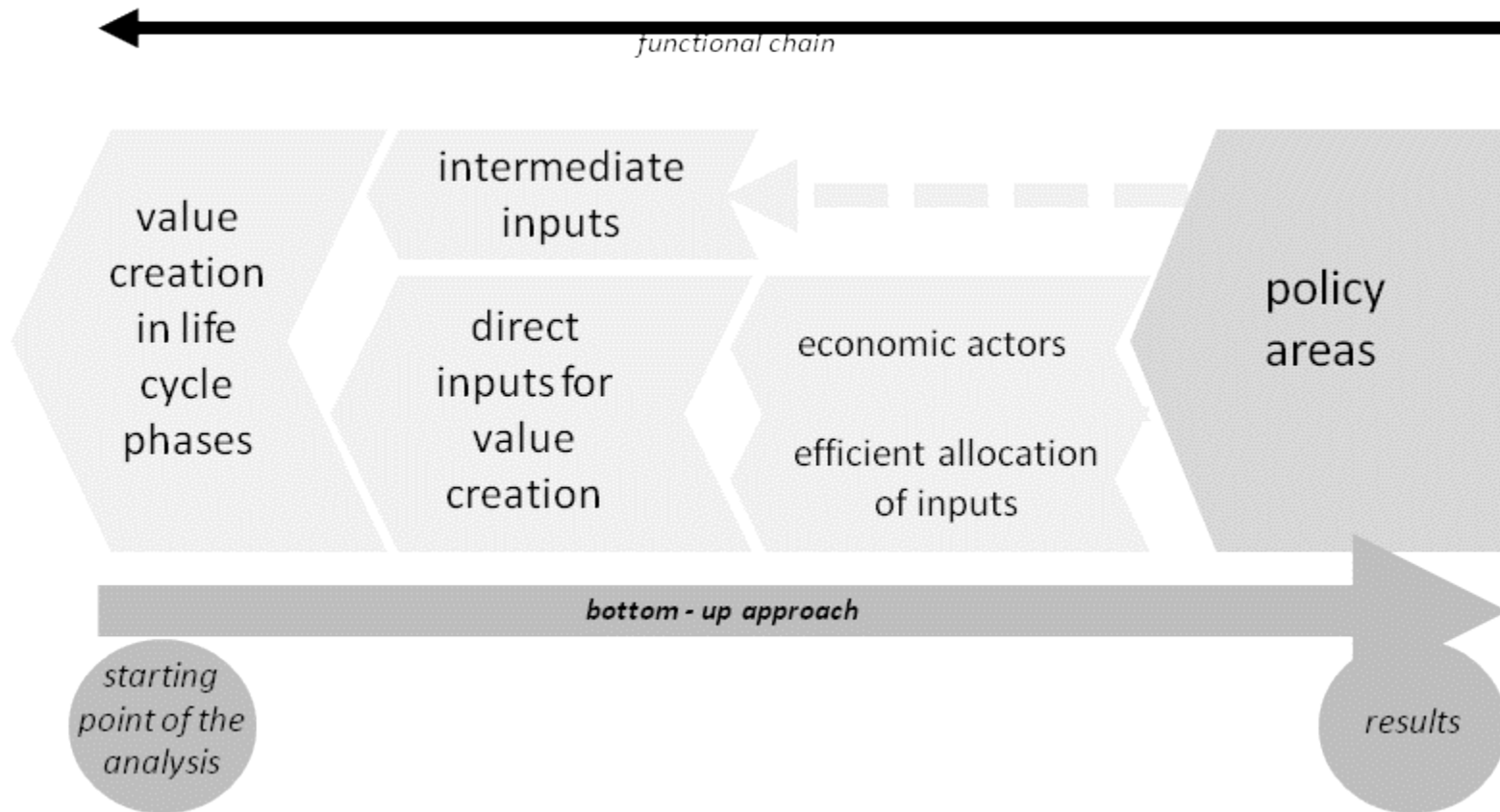
Questions for discussion:

- Are the policies discussed exhaustive? Are we missing a key policy activity or area ?
- Is each policy activity enough substantiated?
- Are the case studies illustrative?
- Does the OECD and non-OECD perspective transpire easily?

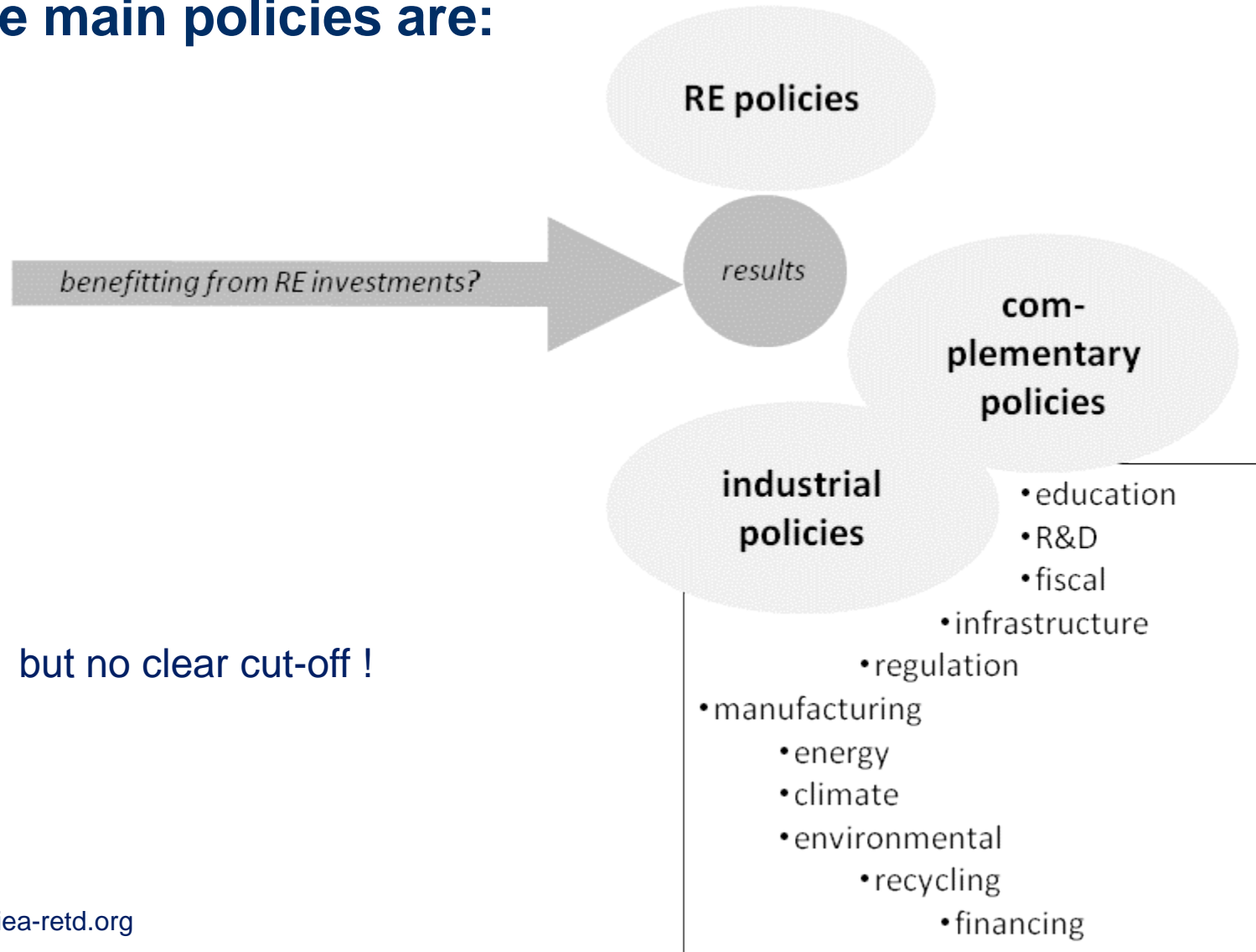
The importance of industrial policy

- What role should governments play in supporting industrial development?
- How to balance different trade-offs that emerge from policy choices?
- What instruments are most effective for capturing value creation (i.e. vertical or horizontal policy instruments, combination)?

How to identify relevant policy areas ?



The main policies are:



.... but no clear cut-off !

What is important for RE policies?

RE policies

❖ Market pull instruments:

- Market based
 - Technology specific
 - Price driven: FIT or FIP, subsidies, taxes, public financing
 - Quantity driven: TGC and quota, tender
 - Technology neutral:
- Regulatory: standards (technology and performance)
- Voluntary: programs and green tariffs, ...

❖ Technology push instruments: public R&D, tax credits, exhibitions, ...

RE Policies should comprise:

- **vision and strategy:** action plan, roadmap 2050
- **objectives:** 20% RE electricity generation in 2020
- **instruments:** FIT, TGC and quota, subsidy, grants, regulation, financing
- **policy making:** suggestions and decision on targets and measures, changes (retro/proactive) and announcements, lobbying opportunities
- **implementation:** institutional set up for generation, controlling, installation, procedures of evaluation and amendments, adjustments and announcements, societal participation

Industrial policies – a clear picture?

industrial policies

- ❖ protection of industries
 - tariffs, tax exemption
 - subsidies, low environmental regulations, ...
- ❖ adjustment of socially undesired results (structural changes)
- ❖ compensation or correction of market failures (information, coordination, public goods, externalities, market power)
 - standards
 - controlling (cartel/trust)
 - public provision of goods & services
 - financial support
 - taxes, subsidies
 - loans, guarantees
 - ownership or equity shares
 - regional planning/clusters/co-operations

Industrial policies – a clear picture?

industrial policies

- ❖ industrial policy: not too much interference, more setting a stimulating framework
- ❖ new approach with focus on processes:
 - systematic discussion with private sector to identify and overcome failures
 - budget for public entities to increase the responsiveness
 - establish monitoring procedures
 - establish operation rules (transparency, open structure, criteria for success, ...)

Industrial Policies ...

... focus on the development of the manufacturing sector,

*... have developed from **protective instruments** and interventions addressing **market failures** to creating an investment climate and building a **stimulating economic framework**.*

*The understanding of industrial policy has broadened **from instrument to a process oriented policy** getting into collaboration with the private sector to find the right way for a common industrial policy.*

Complementary or sectoral policies? - Financing

com-plementary policies

❖ Financing:

- regulation
 - risk provisions (minimum capital ratio, leverage ratio, ...)
 - risk assessments, exposure, insurance
- loans (governmental or state owned institution)
- taxation & guarantees (deposit and investment)

Complementing Policies ...

*.... focus on areas that strengthen the **competitiveness** of industries*

*.... include activities in education, training, research, infrastructure, regulation, etc. affecting **all sectors** (but to a different extent)*

Complementary policies: R&D

❖ R&D:

- Financial support (grants, taxes, ...)
 - research institutes
 - projects
 - cooperation (grants, allowance, tax exemption, ...)
 - training centers or exchange programs
- Networking
 - workshops, exhibitions, research projects
 - electronic platforms (research results, discussions, ...)
 - co-publications, co-patents
- Government spending for innovative products
- Setting of (technical) standards

❖ Education/training:

- establishment or (co)financing of technical departments, lectures, research units (college, university), training centers
- introduction of new certificates, training programs,

**com-
plementary
policies**

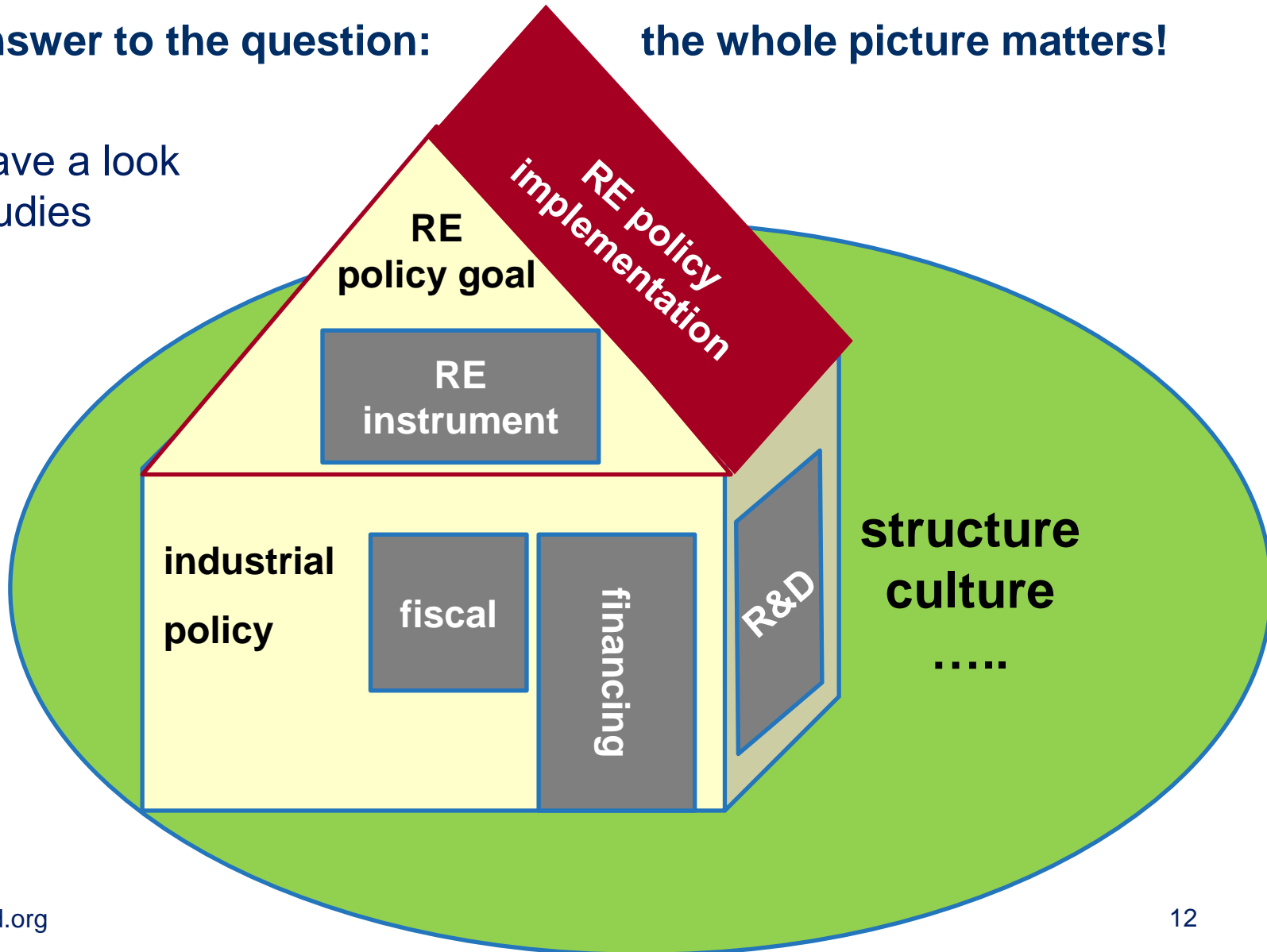
The answer to the question: best value policies?

- The question is not:
 - horizontal vs selective policies!
 - but: which combination of policies best supports value creation?
- And: policies comprise not only instruments but strategies, goals, implementation, ...
- Role of government is to learn/identify which policies are most effective!
 - depends on: structures, endowments, resources, policies, potentials, culture,
 - challenge: country specific situation !!
 - identifying policies is part of „industrial policies“

The answer to the question:

the whole picture matters!

→ Let's have a look at case studies



Policy coverage in the inception report

Opportunities for value creation along the value chain

Policy areas	R&D	Manufacturing	Project Development	Installation	O&M
Investment promotion	←————→				
Linking investment to employment and capabilities		←————→			
Developing productive clusters	←————→				
Links between public research institutions and enterprises	←————→				
Advanced skills development	←————→				

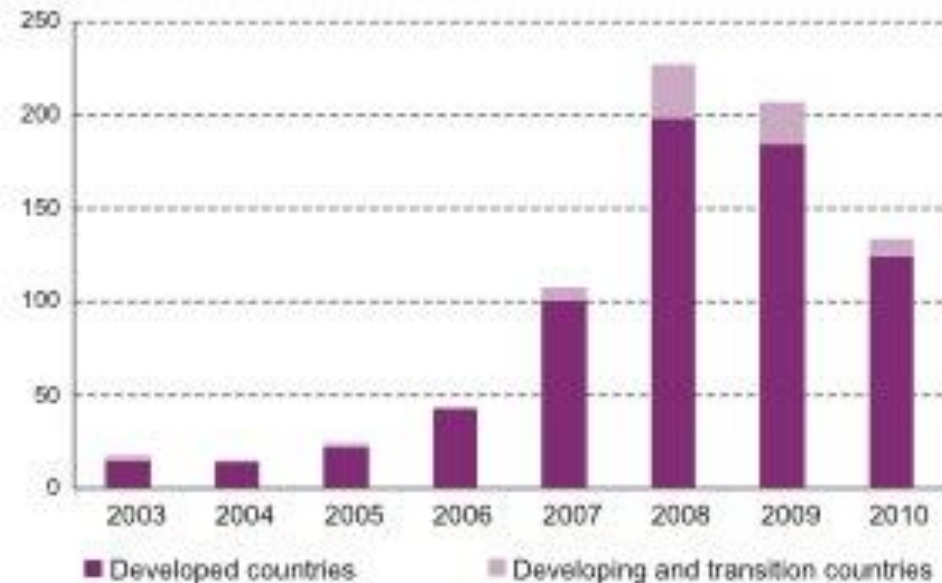
Best practice examples for different policy areas

Policy areas	Best practice examples
Investment promotion	Costa Rica, Canada
Linking investment to employment and capabilities:	
- Local content requirements	Ontario
- Supplier development programs	Ireland, Singapore, Mexico
Developing productive clusters	California, Germany
Links between public research institutions and enterprises	Germany, Canada
Advanced skills development	Malaysia, Spain

Strategic investment promotion (1 of 2)

- Identifying effective strategies for attracting FDI
- More than half of FDI for manufacturing of solar and wind energy targeted towards developed economies (Hanni et al. 2011)

RE generation FDI projects



Source: Authors, based on Financial Times FDI Intelligence database (fdintelligence.com).

Note: Technologies covered are biomass, geothermal, hydroelectric, solar and wind.

Strategic investment promotion (2 of 2)

- Foreign investment has different effects on the host economy
- ...but the extent of value creation depends on the *type of investments* and its *“fit” with the local productive structure* → **strategic targeting is critical**
- **Best practice examples:** Costa Rica and Canada
- Principles:
 - Nudging investors with visionary approach and services for competitiveness
 - Market creation; business facilitation; industrial upgrading

Linking foreign investment to local job creation and capacity building: Local content rules (1 of 2)

- Countries with local content rules for RET

Region	Period	Industry	Local content requirement
China	1996-2008	Wind	Wind turbines under China's NDRC were required to source at least 70% content from local manufacturers; bids with larger amounts of local content are scored higher
Spain	< 1995-	Wind	Up to 70% local content required in various regions prior to offer of development concession
Brazil	2005-2009	Wind	At least 60 to 90 percent local content for wind development
India	2009-	Solar	National Solar Mission-approved solar PV projects must use locally manufactured cells and modules. Solar thermal projects must have 30% local content.
Canada <i>Quebec</i>	2006-	Wind	At least 60 percent local content for wind development; bids with larger amounts of foreign content are scored higher
<i>Ontario</i>	2009-2012	Wind	At least 50 percent local content for wind development.

Source: Rivers and Wigle (2011); CEEW/NRDC (2012: 22); Hao et al. (2010); UNEP/Bloomberg New Energy Finance (2011: 29).

Linking foreign investment to local job creation and capacity building: Local content rules (2 of 2)

- LCRs to protect and support infant industry...but controversial
- Design of LCRs must be considered carefully:
 - Should be limited in duration and incorporate planned evaluation promotion policies
 - Should be technology-neutral and consistent with other industry promotion policies
 - Need for additional mechanisms to support long-term capabilities

Linking foreign investment to local job creation and capacity building: Supplier development programs

- Driven by the (foreign) technology leader
- Governments can nudge companies to join supplier development programs
- **Best practice examples:** Enterprise Ireland, Singapore, Mexico
- Policy principles:
 - Coordination of and information on promotion measures
 - Matching between potential customers and suppliers
 - Economic incentives

Developing local productive clusters (1 of 2)

- Revitalize (start-up) local industries, promote competitiveness and cooperation between stakeholders, promote innovation, stimulate spillovers
- Key challenge: how to make a cluster more resilient and adapt to global competitive pressures
- Cluster management capabilities are critical
- **Best practice examples:** California and Germany solar clusters

Developing local productive clusters (2 of 2)

- Some policy principles:
 - Mechanisms to promote a mix of competition and cooperation between firms
 - Links between firms and the technological infrastructure of education and research institutes
 - Balanced input of resources from government and industry
 - Provision of seed money and R&D
 - Joint marketing and regional branding

Cooperation between public research organizations and enterprises

- Linkages between these organizations – stimulate innovation, entrepreneurship, technology development
- **Best practice ex.:** Fraunhofer Institutes, Wind Energy Institute of Canada
- Policy principles:
 - Funding mechanisms that rely on several types of sources
 - Balance between fundamental and basic research
 - Focus on practical application of value to firms
 - Emphasis on entrepreneurship and spin-off creation

Enhancing skills development

- Need to be integrated in actual project development and implementation
- Pursued to meet the demand of the private sector: short and long-term
- **Best practice example:** Penang Skills Development Centre, Malaysia
- Policy principles:
 - Close cooperation between private sector, education institutions and government
 - Training and education programs aligned with market needs
 - Shared funding from the private sector



THANK YOU!

For additional information on RETD

Online: www.iea-retd.org
Contact: IEA_RETD@ecofys.com