

ECONOMIC OPPORTUNITIES OF THE ENERGY TRANSITION

Ulrike Lehr

What drives employment under the energy transition?

EMPLOYMENT FROM RENEWABLE ENERGY (RE) AND ENERGY EFFICIENCY (EE)

International experience shows that RE and EE employment is driven by:

- ▶ Ambitious plans for RE and EE (domestic market)
- ▶ Development of the domestic industry (qualified work force and investment incentives)
- ▶ Stable framework conditions
- ▶ Export opportunities

Investment

- Installation of wind parks, solar heat, solar electricity
- Efficient buildings
- Efficient production
- Efficient mining
- Maintenance of RE

Domestic production

- RE and EE components
- Intermediate goods, inputs
- Services for installation, planning, operation, maintenance
- Local content

Exports

- Intermediate goods
- RE and EE components
- Regional markets

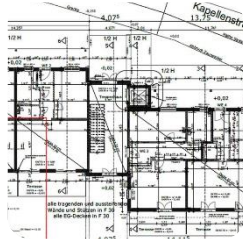
How do we measure employment from RE and EE? – Concepts and methods

Gross employment

Established methodology:

- ▶ Collect data on
 - ⇒ Capacities installed
 - ⇒ New capacities
 - ⇒ Construction times
 - ⇒ Employment factors
 - => calculate direct employment
- ▶ Use data on industrial structure, structure of service sectors, economic structure information
 - => calculate indirect employment
- ▶ Sum of direct and indirect employment = Total GROSS employment

The value chain matters!



Inputs:

- Material
- Components
- Services

Inputs:

- Engineering
- Banking
- Audits

Inputs:

- Construction
- Material
- Services

Inputs:

- Parts
- Services
- material

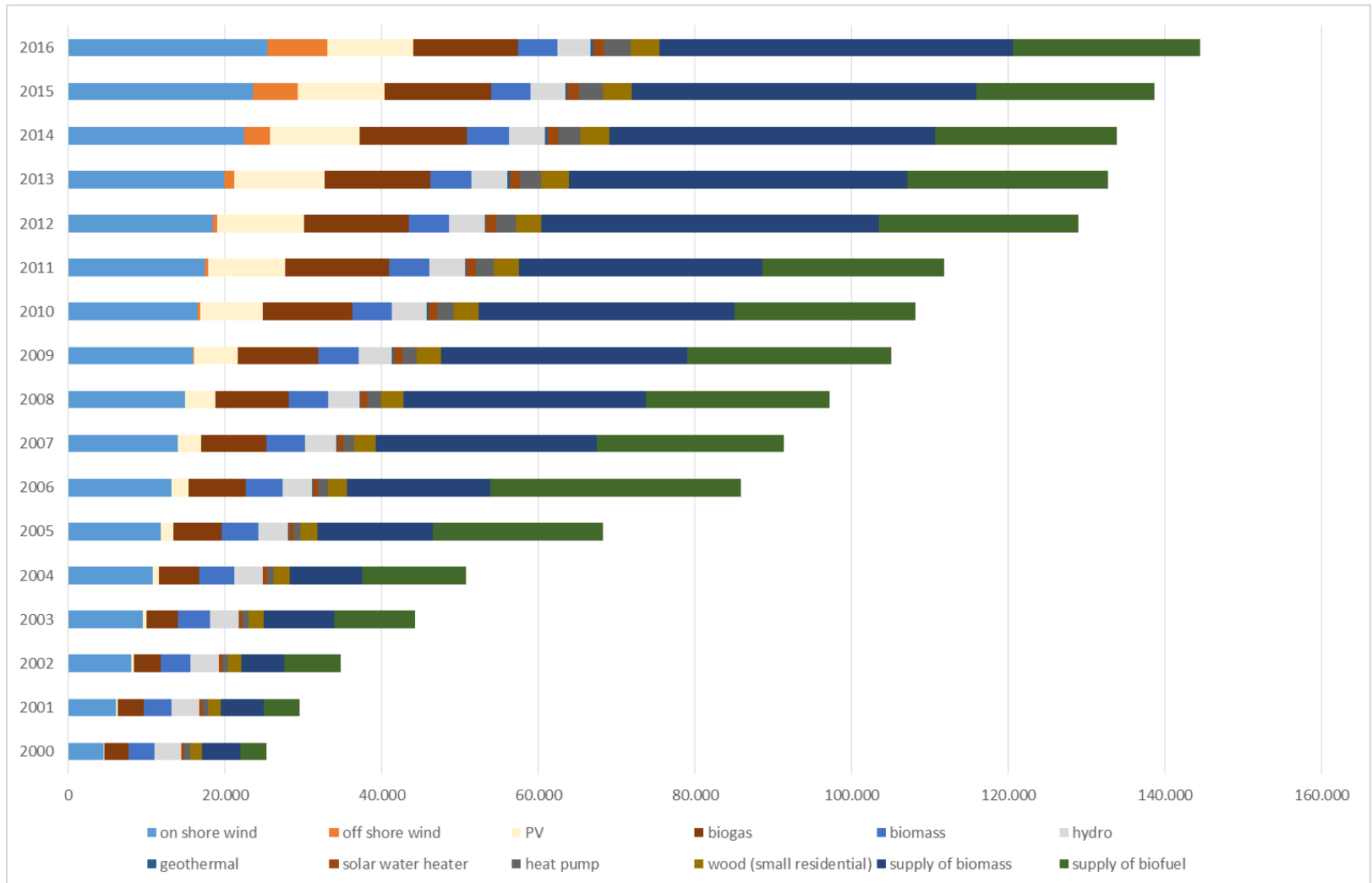
Inputs:

- Construction
- Waste management

German Experience (Monitored since 2004 by consortium ZSW/GWS/DLR/DIW)

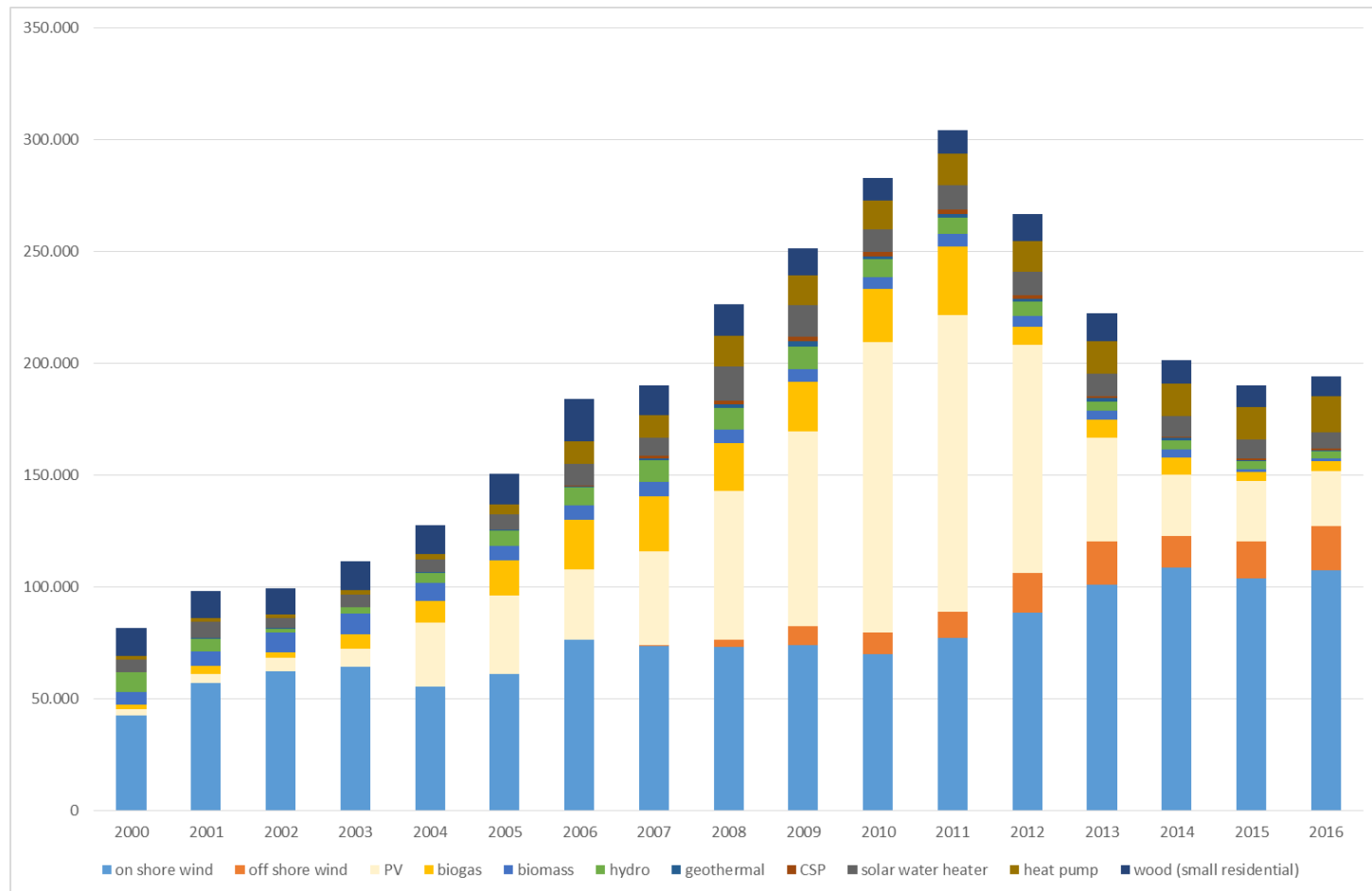
Development of jobs from RE in Germany

Steady growth: Operation and maintenance



Development of jobs from RE in Germany

Changing dynamics: installation and production



Success factors: Germany

- Subsidies, tax breaks, feed-in tariff,
- changes are announced well ahead of time
- Investor security

Step 1:
Policy
framework

Step 2:
Very high
domestic
demand

- 5 000 MW in 1990,
- 103.618 MW in 2010;
- 8.8 billion € in 2004,
- 26 billion € in 2010
- 19.5 billion in 2015

From 160.000 (2004) to 400.000 (2012) and 330,000 today

Always:
Domestic
industry

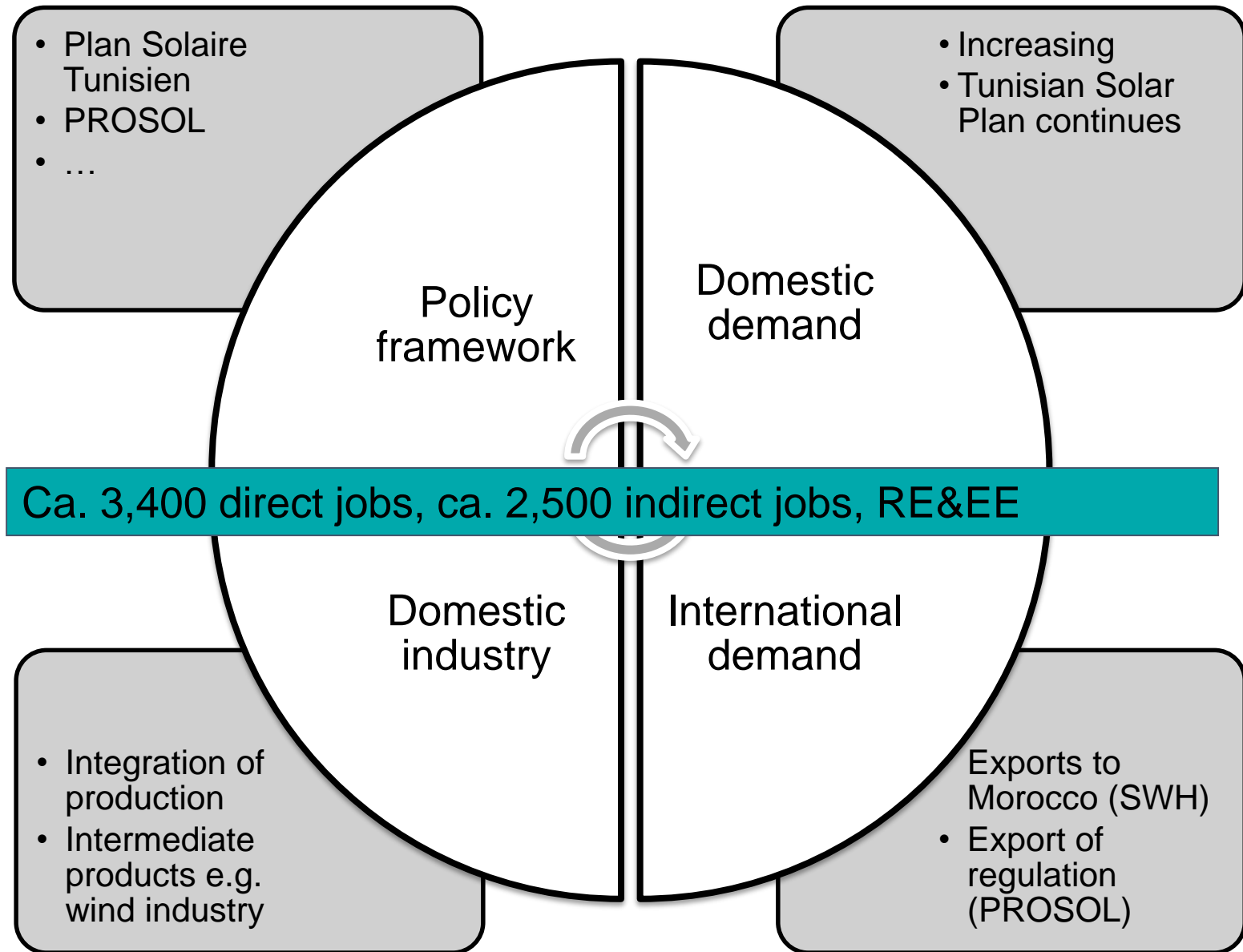
Step 3:
International
demand

- Strong domestic industry
- Traditional strength in machinery, electric equipment
- High-tech oriented industry

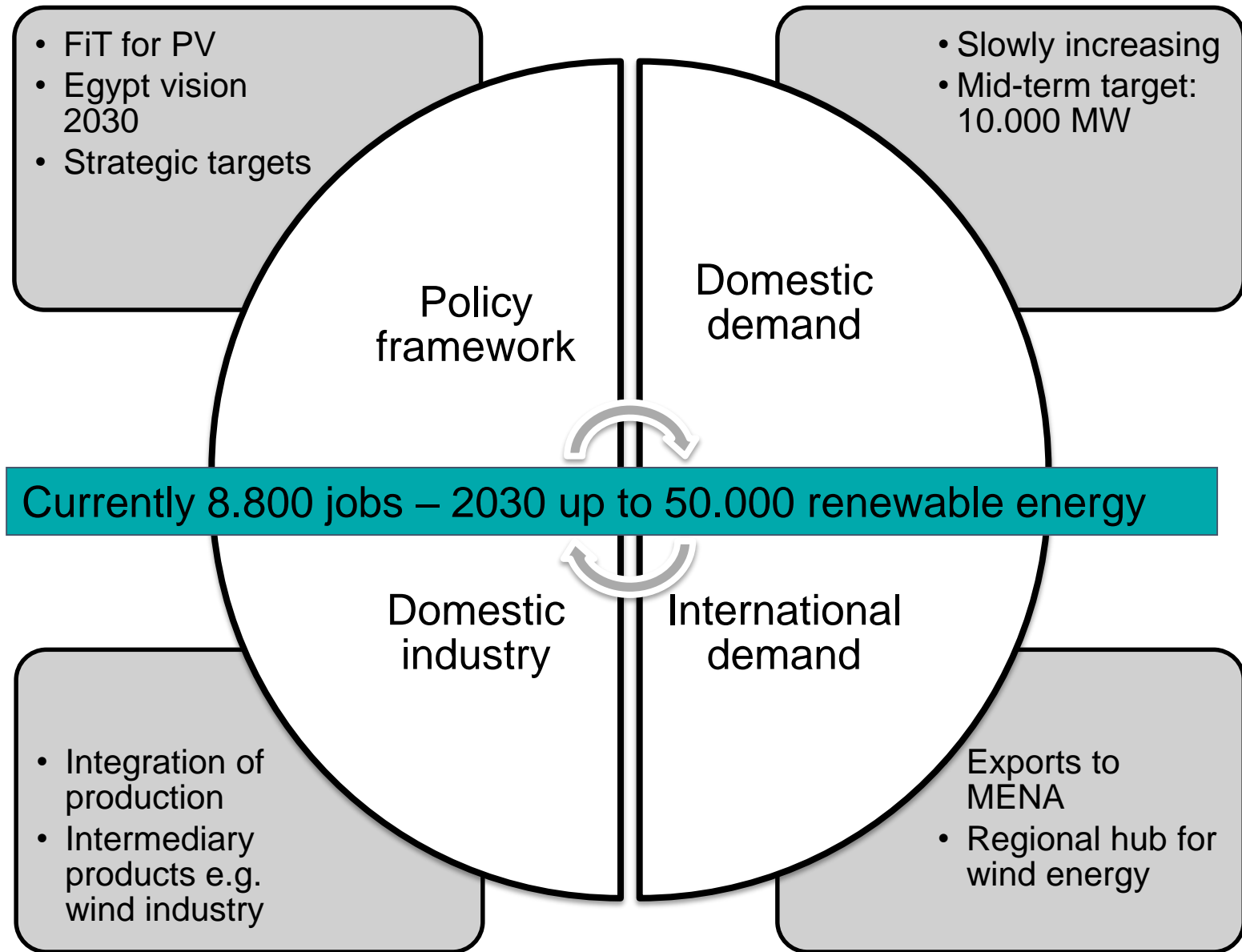
- Export oriented country,
- more than 70% of turnover in the wind industry is export

MENA countries

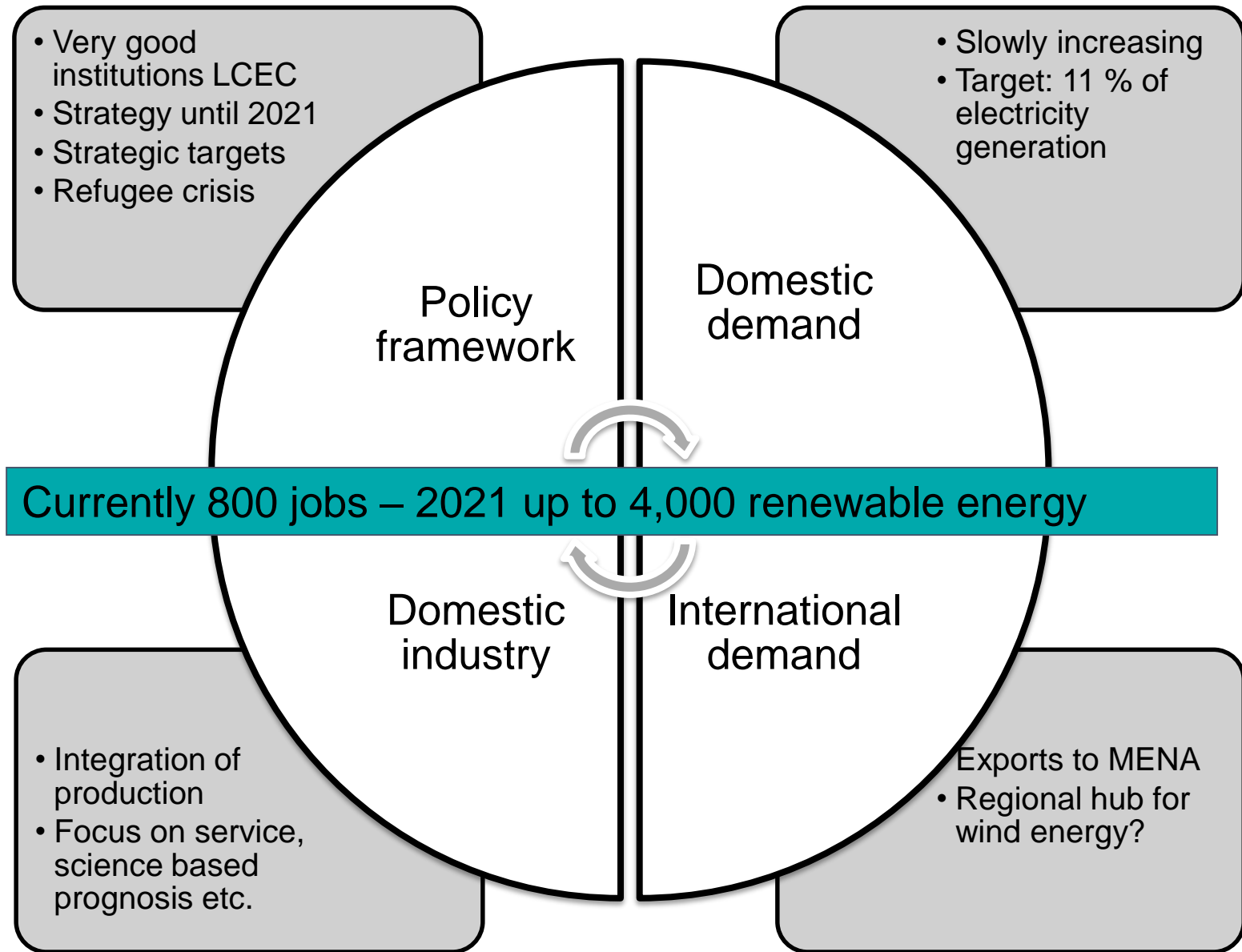
MENA: the example of Tunisia



MENA: the example of Egypt



MENA: the example of Lebanon



Policy recommendations- focus renewables

(IEA-RETD, REValue)

Policy interventions and opportunities for value creation along the RE value chain – Overview

	Manufacturing and Distribution	Project Planning and Development	Construction and Installation	Operation and Maintenance
1. Strategic investment promotion	X	X		X
2. Linking investment to employment creation and capacity building:				
a) Local content requirements	X	X	X	X
a) Supplier development programs	X	X	X	
3. Developing industrial clusters	X	X	X	X
4. Cooperation between public research organisations and the private sector	X	X		
5. Enhancing know-how through education and training	X	X	X	X

Policy interventions and opportunities for value creation along the RE value chain

1) Strategic investment promotion

- ⇒ Strategic targeting of specific firms and segments of the value chain based on a long-term vision for the RE sector
- ⇒ Restrictive policies can discourage private sector investment.
- ⇒ A wide set of incentives, without targeting, does not ensure higher competitiveness.

2a) Supplier development programs

- ⇒ Coordination of promotion measures
- ⇒ Matching between potential customers and suppliers
- ⇒ Economic incentives to intensify supplier relations and technology transfer

2b) Local Content Requirements

- ⇒ Limited in duration and incorporate planned evaluation phases.
- ⇒ Technology-neutral and consistent with other industry promotion policies.
- ⇒ Combined with other policies for industrial development.

Policy interventions and opportunities for value creation along the RE value chain

3) Developing industrial clusters

- ⇒ Mechanisms to promote a mix of competition and cooperation between firms;
- ⇒ Policies that emphasize the linking of firms to the education and R&D institutions;
- ⇒ Input of resources from government and industry;
- ⇒ “Nudging” private companies and inviting them to collaborate and network among themselves;
- ⇒ Trust-building and dialogue to create spillovers;
- ⇒ Joint marketing and regional branding.

4) Improving cooperation between public research organizations and private sector

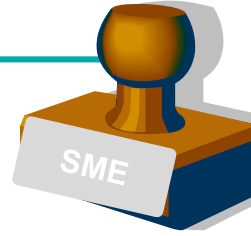
- ⇒ Supporting the creation of centers of excellence;
- ⇒ Joint funding from the private sector and the government for technology oriented research;
- ⇒ Involving universities (faculty, students) in applied research (joint appointments, internships).

Policy interventions and opportunities for value creation along the RE value chain

5) Enhancing know-how through education & training

- ⇒ Integrating training programs in vocational training systems;
- ⇒ Promoting and coordinating local apprenticeships;
- ⇒ Improving basic and strategic management education in universities and training centers;
- ⇒ Establishing training centers based on public-private partnerships;
- ⇒ Developing "training the trainer" programs on RETs; and
- ⇒ Encouraging training that complies with international standards.

SME?



▶ Wind energy

- ◆ complete systems will be imported
- ◆ but components (turbines, electronics) can be produced domestically SME
- ◆ Construction works (including towers) provided domestically
- ◆ Planning SME

▶ Buildings

- ◆ Design, architectural planning SME
- ◆ Glass products and insulation components SME
- ◆ Construction works

▶ PV

- ◆ all complete systems will be imported
- ◆ electric components domestically produced SME
- ◆ Construction works will be provided domestically
- ◆ Planning, design SME

▶ Solar Hot Water

- ◆ Assembling SME
- ◆ Manufacturing of components SME
- ◆ Installation

Important lessons learnt

- ▶ Consistency in policy is the best incentive for industry
- ▶ Support for renewables and support for the development of domestic industries increases value creation
- ▶ Setting targets matter – but they need to be monitored
- ▶ To monitor employment: project data have to be collected by central authority

Thank you for your attention.



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