



RENEWABLES – AN OPPORTUNITY FOR LOCAL INDUSTRY AND SERVICES





Renewables – an Opportunity for Local Industry and Services

The development of renewable energy has so far focused on large wind farms, large hydro-electric and solar power plants – high-tech solutions supplied by international corporations. A broad-based development, however, will require a multitude of smaller installations and will create a new market for local small and medium sized enterprises. This paper outlines a strategy for the development of decentralised renewable energy generation coupled with the promotion of small and medium sized enterprises.

Renewable energy has developed into a market of more than US\$ 200 billion employing more than 3.5 million people directly worldwide. Total investment increased by one third in 2011 and by a factor of five since 2004. In Germany, the renewable energy sector has become a major contributor to job creation currently employing 370,000 people. This figure is expected to reach over 500,000 by 2030.

The above figures indicate the employment in hardware and maintenance only. Total employment is much higher in reality. An additional 30 to 50 percent – depending on the size and type of installations – have to be considered for components production, construction and ancillary services. Energy efficiency projects, where installations have to be tailored to existing plants or buildings, offer a similar employment potential to that of renewables. Design, civil engineering, outfitting and assembly work constitute a substantial share of costs and employment in relation to the total investment.

The concept outlined in this paper seeks to utilize the potential for developing and expanding local entrepreneurship in the energy sector thereby combining two vital development objectives:

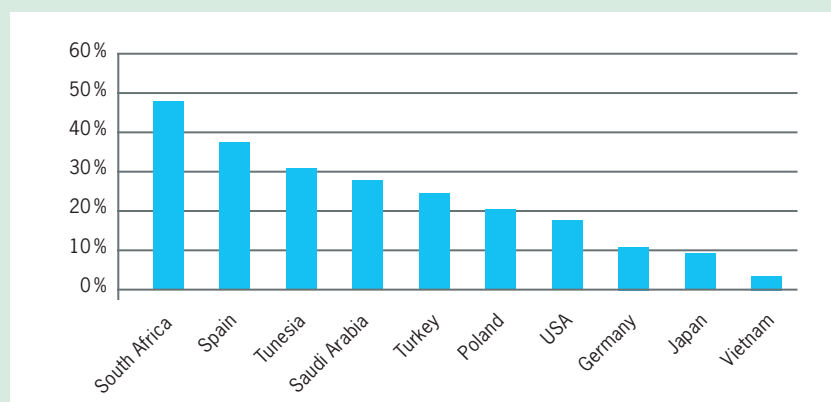
A. Promotion of renewable energy and energy efficiency

- Closing the existing or imminent energy gap while observing CO₂ reduction targets
- Reducing dependence on oil imports; lessening the burden on the budget (in oil producing countries: considering the opportunity costs of oil exports, especially where reserves are declining).

B. Economic development and employment creation

- Employment creation, especially in the area of youth unemployment
- Regional spread of industry and services
- Diversification of industry and services

Figure 1:
Youth unemployment rates
in selected countries



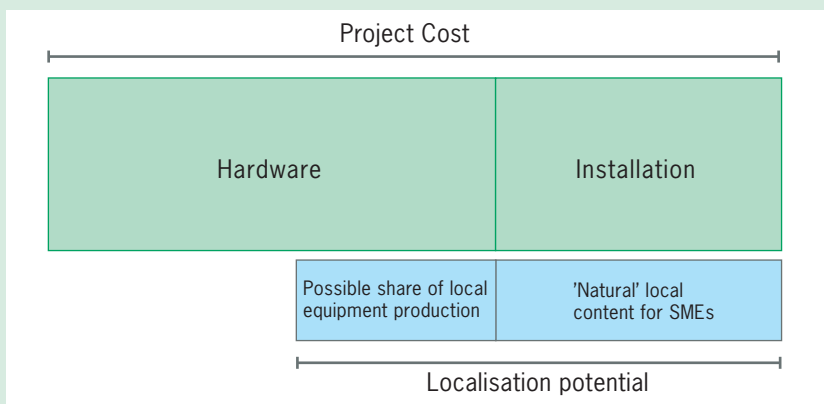
Source: CIA World Factbook

The Opportunities

The government leads energy planning and development in most countries and defines energy market policies, technology choices, size and location of power plants, and other structural elements. If a policy is adopted to develop local enterprise in the energy sector, it offers a leverage factor by encouraging 'local content' in all new projects thereby exploiting the new market opportunities of renewable energy for local business.

Two kinds of local content can be exploited, depending on government policy (see also figure 2 illustrating the 'localization potential):

- Production of equipment or components can be gradually 'localized' by using local content requirements for imports (e.g. China's policy for wind energy). This opportunity is open to countries which already possess the appropriate manufacturing base.
- Local planning, design and installation: this part of a project offers 'natural' potential for local content, provided that contracts are not simply awarded to international contractors without including local subcontractors in the bidding process. Exploiting this local potential is a question of size and the choice of technology. As figure 3 illustrates for PV as an example, the potential is relatively high in small projects because they contain a substantial amount of planning, design, customisation and installation work, whereas large power plants are dominated by the cost of high-tech equipment.



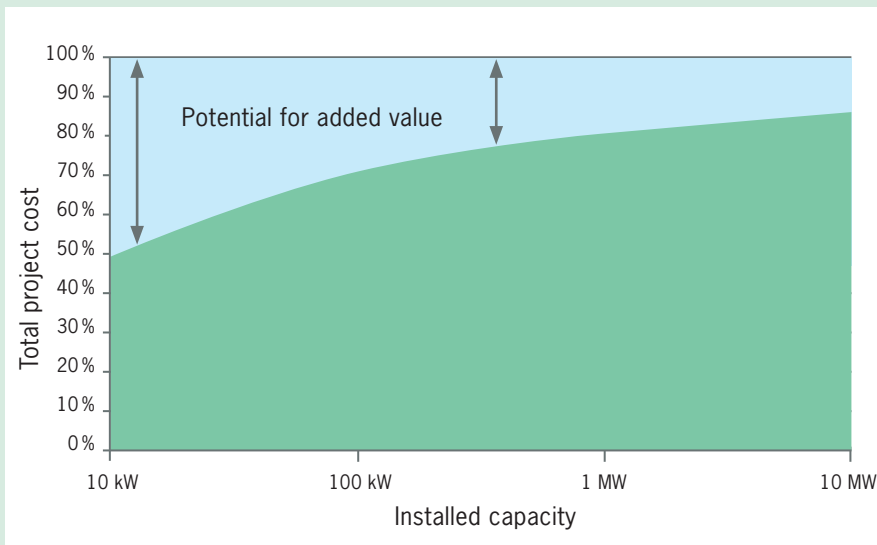
Source: INTEGRATION

Figure 2:
Project cost/local content

Depending on technology selection and promotion schemes, the energy market can offer great potential for local SMEs to develop. A large number of distributed generation systems can support national energy security through diversification.



Figure 3:
Local content in PV projects



Source: INTEGRATION/own calculations

An Appeal for Decentralised Small Projects

With the idea of involving and promoting local SMEs, projects which offer a high level of natural – as opposed to regulated – local content, should be given preferential treatment. This local content is inherent in all small renewable energy and energy efficiency projects, and these are decentralised. They offer market entry opportunities to newcomers for various reasons:

- Decentralised projects are individual ventures with a relatively small contract volume and can be handled more easily by local SMEs.
- Large international contractors are less interested in such projects, because they are normally not competitive against local bidders.
- Development geared to a multitude of small and medium sized projects which emerge over a longer period of time in contrast to rapid growth through centralised installations.
- Incentives and direct support have a longer period to become effective (for example Germany). Skills can be developed progressively. This allows SMEs to grow gradually, drawing on existing resources.
- Decentralised projects depend on local SMEs: Maintenance and repair services must be available from a contractor at the location. Civil engineering and equipment installation can usually be provided more efficiently by local firms.
- In a decentralised scheme, the investment capital can be raised locally. The local businessman, group or municipality will be familiar with the local situation and therefore, accept a longer pay-back period.

Applying the above criteria in the choice of technologies, the following pattern emerges: To achieve, for instance, 100 MW installed renewable capacity, technologies using a large number of small projects (e.g. small PV sets, bio-gas, and EE projects) offer higher potential for SME promotion than one large 100 MW project (e.g. an off-shore wind park).

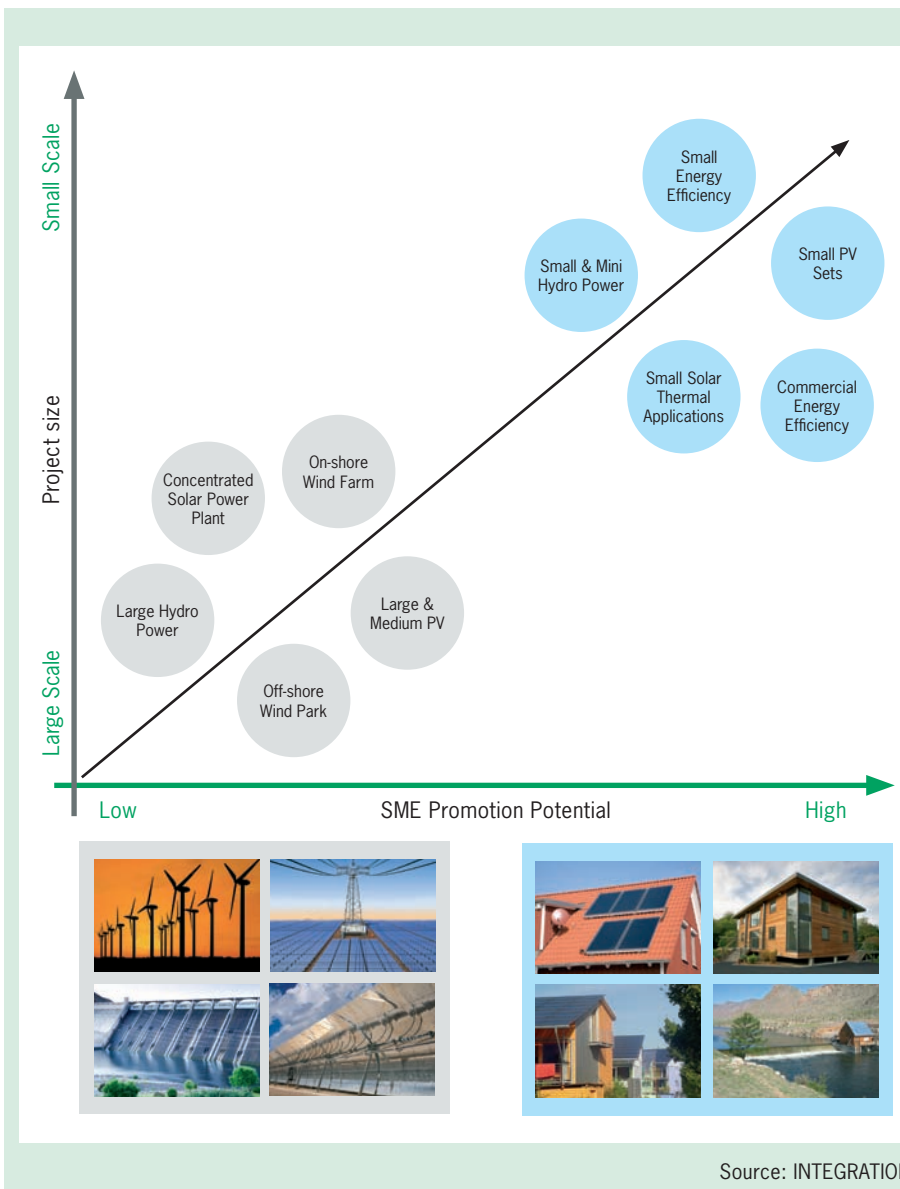


Figure 4:
Illustration of SME potential

Success Factors

European leaders in RE such as Denmark, Spain or Germany have employed various promotional strategies including research and development, government financed pilot projects, direct or tariff subsidies, preferential financing schemes, structural reforms, standards, regulations and other means. A common success factor of these strategies was the decision for a balanced strategy, which relied on a combination of large, medium and small projects, resulting in a combination of central and decentralised feed-in systems. With a long-term development horizon, a conducive legal and regulatory framework was created which assigned the leading role in development to the private sector.



An Implementation Blueprint

The recommended strategy combines some initial large implementation projects with a medium-term plan to expand to a broad-based renewable energy sector development. It aims to extend investment to decentralised locations, including smaller industrial and commercial establishments or even households. Energy efficiency forms an integral part of the strategy and promotional campaigns conducted alongside renewable energy development.

The government initiates a medium-term development plan (e.g. for five years) even before the local capacities for planning, engineering, maintenance services etc. as well as the legislative, regulatory and other framework conditions are fully in place.

The first projects provide feedback for the planning of SME promotion and specific legal, regulatory and institutional requirements, which will be improved alongside the continuing development of renewables. The important advantage of this strategy is the early demonstration of the feasibility and benefits of renewable energy and energy efficiency projects. The pilot projects also create a pull-effect for local SMEs.

In more detail, such a strategy will include some of the following elements:

I. Lighthouse projects and early feedback mechanism

- A number of “lighthouse projects” to demonstrate renewable energy applications to the country’s political elite, the business community and the wider public
- Selected energy efficiency projects with high visibility
- A feedback mechanism drawing on the experiences gained in the lighthouse projects to highlight still existing barriers to investment in renewable energy and legal regulatory and structural requirements

II. Awareness creation and development

- An awareness campaign to prepare the ‘broad-basing’ of renewable energy and energy efficiency and to gain support of legislators and policy makers
- A development plan extending renewable energy capacity through further large installations, but at the same time shifting the policy towards a balanced mix of large/central and medium/small renewable energy applications.

III. Development of enabling frameworks and finance

- Upgrading the legal regulatory and institutional framework to accommodate renewable energy investment (feed-in law, tariffs etc.) and foster energy efficiency measures (standards, incentives etc.)
- Providing appropriate financing instruments (special credit lines and interest rates, grace periods, credit guarantee schemes etc.)
- Enabling conditions to attract FDI and licensing, i.e. the respective legal and regulatory framework and an effective promotional agency or scheme.

IV. Capacity development and SME promotion

- A five year plan to upgrade human capacities, entrepreneurship and SME structures
- Organizational development and capacity building in human resource development institutions; orientation towards (a) entrepreneurship and (b) skills required for renewable technologies (curricula, training courses, exams, training facilities)
- Skills upgrading and training offer to suitable SMEs for entering the renewable energy services and installation markets
- Specific company support and management consultancy to SMEs
- An auditing program to identify and certify companies as contractors for renewable energy and energy efficiency projects

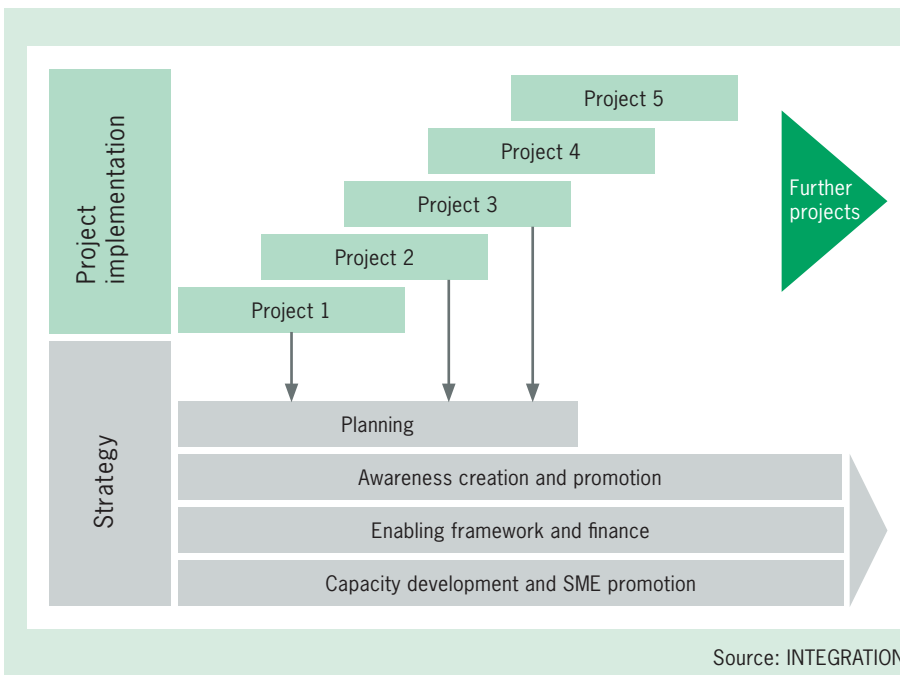


Figure 5:
An implementation blueprint

An Offer for Implementation

Based on more than 30 years of project management experience, INTEGRATION International Management Consultants offer the expertise to design, implement and monitor the aforementioned combined strategies. The two competence centres 'Renewable Energy' and 'Small and Medium Sized Enterprises' operate with multi-disciplinary teams selected individually for each project.

Renewable Energy

- Energy policy and strategy advice for integration of renewable energy generation into national plans
- Guidelines for private sector participation in the renewable energy sector
- Establishment and strengthening of local and regional utilities
- Human capacity building in the energy sector
- Planning design and supervision of renewable energy projects
- Off-grid electricity supply projects for remote areas

Small and Medium Sized Enterprises

- Enabling environment for SMEs
- Organizational development and HRD for private sector organizations
- Design and implementation of SME support programs
- Human resource development, strengthening of vocational training institutions
- Technology transfer, joint venture promotion and public-private partnership
- Design and installation of SME financing schemes
- Value chain analysis and promotion

Located in Germany, a country at the forefront of renewable energy and energy efficiency, INTEGRATION has gathered the relevant experience and lessons learnt in the domestic market and transferred this knowledge into energy planning and projects in 40 developing and emerging market countries. Within the last 10 years, more than 60 projects have been implemented with a contract volume of more than € 70 million contributing greatly to the improvement of energy planning and SME development.

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INTEGRATION is a member of various national and international networks and has actively entered into many other partnerships.



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