

# A Blueprint for a Foreign-Local Joint Venture: The 100 MW Sumatra Solar Plant

Analytical assessment of workforce development pathways in emerging market solar manufacturing through structured training programs.

Educational case study based on manufacturing sector development -  
Source: J.v.G. Technology GmbH.





**Strategic analysis for emerging  
market solar workforce  
development**



Created as part of the PVKnowHow  
Knowledge Network



Prepared by J.v.G. Technology GmbH  
European specialists in turnkey solar  
module production lines

# Indonesia's Renewable Energy Manufacturing Context

Indonesia's National Energy Policy sets ambitious renewable energy targets of 23% by 2025 and 31% by 2050, creating substantial workforce requirements for solar manufacturing. The International Renewable Energy Agency projects that about 1.3 million jobs could be available in Indonesia's renewable energy sector by 2030, up from just over 100,000 in 2017.



## Manufacturing Growth

Indonesia is set to produce 19 gigawatts of solar modules annually by 2030, significantly boosting its renewable energy capacity



## Skills Development Drive

Market-responsive training, recognized competency certifications, and timely learning modules can provide the skills needed for green jobs in the energy sector



## Employment Opportunity

The largest job opportunities would be in the manufacturing industry in the solar power plant sector, with a contribution of 5.7 million people

# Why Local Workforce Development Matters



## Manufacturing Skills

Manufacturing of machinery and equipment for electricity generation represents one of the highest job gains from renewable energy development



## Knowledge Transfer

Technology transfer to the local workforce fosters a knowledge-rich environment for innovation and growth



## Economic Development

The expansion of solar energy is expected to bring significant economic benefits, create jobs, and attract foreign investment

# Training Program Structure

## Technical Skills

- Solar module assembly techniques
- Quality control procedures
- Equipment operation and maintenance

## Operational Skills

- Production line management
- Safety protocols and procedures
- Efficiency optimization methods
- Troubleshooting and problem-solving

# Workforce Development Challenges

## Skills Gap

- Skills for renewable power integration are currently not widely available in Indonesia
- Renewable energy engineering is offered by only 31 vocational schools
- Quality standards alignment requirements

## Infrastructure Development

- Training facility requirements
- Equipment procurement for hands-on learning
- Certification program development

## Knowledge Transfer

- International expertise acquisition
- Local trainer development
- Continuous learning systems

# Why International Partnership is Essential

## Technology Transfer

Access to proven manufacturing processes and quality systems from experienced providers

## Training Expertise

Comprehensive technical training programs delivered by international specialists

## Operational Support

Ongoing technical assistance during ramp-up and autonomous operation phases

## Quality Standards

International certification and compliance requirements for global market access



# Training Program Development Framework

1

## Foundation Phase

- Basic manufacturing principles
- Safety procedures and protocols
- Quality control fundamentals

2

## Advanced Technical Training

- An experienced European turnkey provider delivers specialized training
- Hands-on equipment operation
- Production optimization techniques

# Training Resource Allocation

## International Provider Contributions

- Technical curriculum development: 40-50% of training investment
- Equipment training and certification
- Ongoing technical support
- Quality systems implementation

## Local Partner Contributions

- Training facility development: 10-20% of investment
- Local workforce recruitment
- Basic skill assessment and preparation
- Regulatory compliance and certification

# Proven Training Methodology

## Structured Curriculum

A proven turnkey manufacturing concept with standardized training modules and competency assessments

## Practical Training

Hands-on experience with production equipment and real manufacturing scenarios

## Skills Certification

Comprehensive assessment and certification program ensuring international quality standards

## Continuous Development

Ongoing skill enhancement and knowledge updates for evolving technologies

# Key Project Data

**100**

**Capacity**

MW production capacity

**12-18**

**Ramp-up Period**

Months to autonomous operation

**50-80**

**Workforce**

Employees to be trained

## Investment

Indicative mid-scale turnkey  
CAPEX

## Line Type

Automated solar module  
production

## Region

Sumatra, Indonesia

## Project Type

Foreign-local joint venture (PT PMA)

**Source:** PVKnowHow / J.v.G. Technology GmbH

# Alignment with National Development Goals

## Industrial Development

Indonesia promotes the use of domestic products and attracts foreign investment for infrastructure development, particularly in power sector projects

## Skills Development

A skilled renewable energy workforce will need to emerge, requiring well-designed labour market policies and forward-looking education and training programs

## Employment Creation

The energy sector could create 383,000 new jobs this decade, with almost 1 million total jobs in renewable energy construction by 2050

## Technology Transfer

Establishing knowledge base for autonomous solar manufacturing operations

# Strategic Implementation Framework

## Workforce Opportunity

Developing skilled local labor is essential to propel the solar panel industry forward, with Indonesia having the potential to competitively produce solar panels

## Partnership Advantage

Technology transfer and joint ventures with international partners can leverage expertise to enhance competitive edge and facilitate cutting-edge technology transfer

## Training Timeline

A proven turnkey manufacturing concept enables structured workforce development within 12-18 months to autonomous operation

# Source & Authorship

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