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## REGIONAL CONFERENCE

# INCLUSIVE ENERGY TRANSITION IN SOUTH ASIA AND BEYOND

7–9 MAY 2024 • Galle, Sri Lanka

**Session 3: Developing the Workforce for Energy Transition (ET)**

**Presentation topic: What ET Means for the Workforce and Inclusive Social Protection**

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# Message 1: “Globally, renewable energy transforms industries, creating jobs, requiring skilled workers, and necessitating social protection policies.”

## 1. Transformative Opportunity:

- Renewable energy offers a path to a cleaner, sustainable future.
- It represented 28% of global electricity generation in 2022, up from 6.5% in 2010.

## 2. Reshaping Industries and Creating Jobs:

- Global renewable energy employment surged to 13.7 million jobs in 2022, up from 7.3 million in 2012, with a one-million increase since 2021.
- Solar PV leads job creation at 36%, followed by bioenergy (26%), wind energy (18%), and solar heating/cooling (10%).
- Significant employment variation observed across production, installation, and maintenance roles by technology and country (see slide 10).

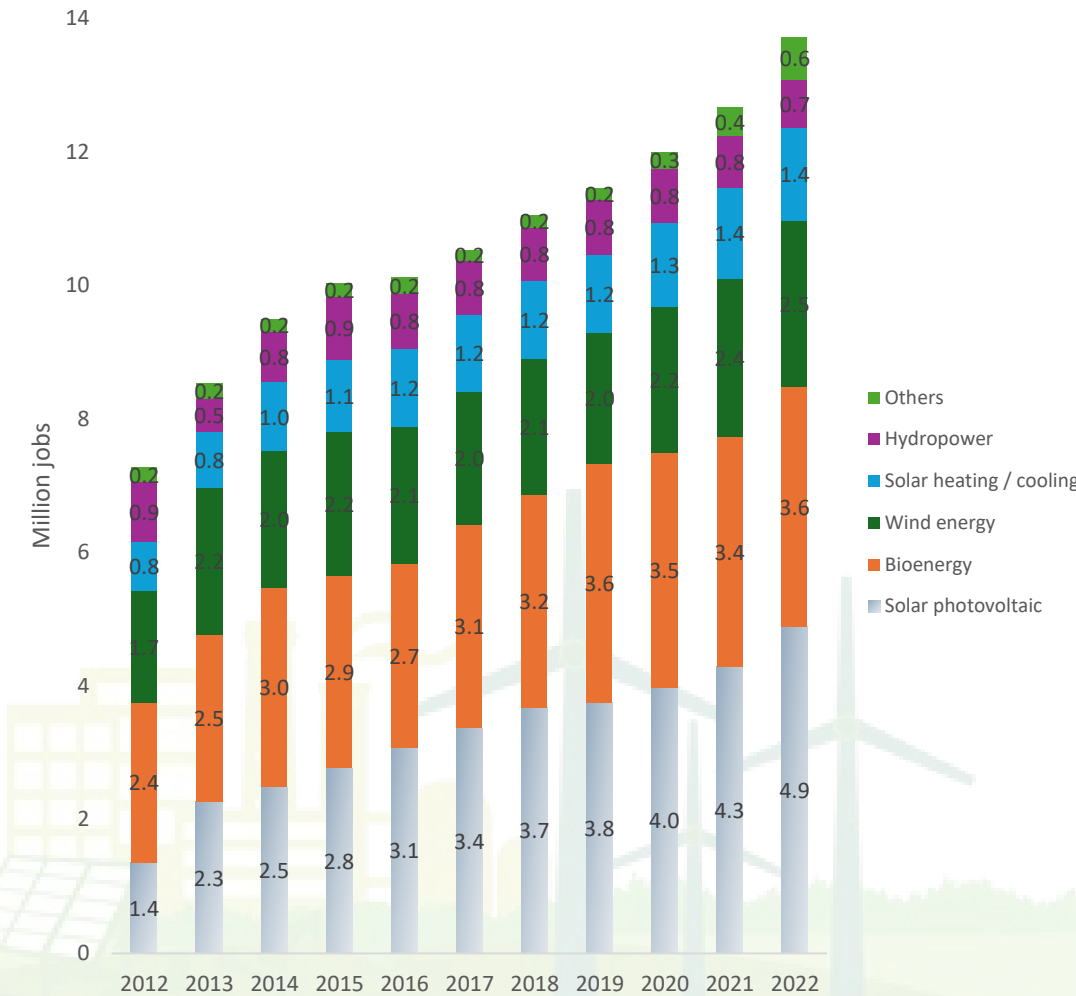
## 3. Meeting Workforce Demand:

- The shift to renewables demands skilled professionals in engineering, technology, project management, and policy development.
- Meeting this demand is a significant obstacle to renewable energy adoption. e.g., globally in 2022, only 23% of workers were classified as high-skilled compared to 36% as low skilled.

## 4. Ensuring Social Protection:

- Effective social protection ensures worker rights, safety standards, and fair labour practices in renewable energy.
- Policies should prioritize worker well-being, including healthcare access, fair wages, and job security, ensuring that no one is left behind.

Figure 1. Evolution of global renewable energy employment by technology, 2012-2022



Source: Renewable Energy and Jobs: Annual Review 2023



# Message 2: “Renewable Energy on the rise in Asia and Pacific”

## 1. Empowering the East: Renewable Energy Surge in Asia-Pacific

- Renewable energy's share grew in Asia from 14% to 26% and in the Pacific from 19% to 34% (2012-2021, Figure 2).
- In 2022, Asia-Pacific contributed 42% of global renewable energy capacity additions.
- Fastest-growing renewables: Hydropower, Solar PV, and wind.
- Regional investments in renewable energy projects reached \$254 billion in 2022, up 5% from the previous year.

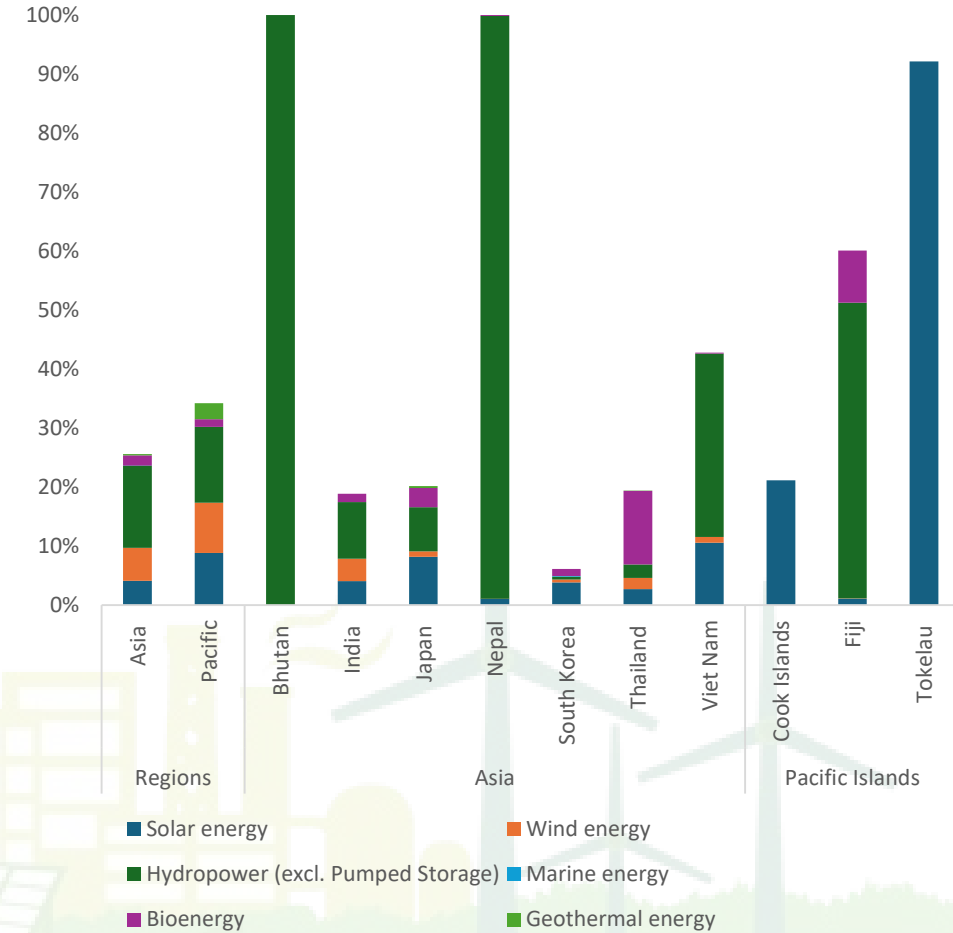
## 2. Clean Energy: Notable Regional Triumphs

- *Bhutan, Nepal:* Achieve 100% renewable energy, mainly from hydropower.
- *Vietnam:* Relies on hydropower for 31% of energy, supplemented by solar (11%) and wind (1%).
- *South Korea:* Leads in solar capacity (21 GW), but solar contributes only 4% to electricity generation, dominated by fossil fuels and nuclear power.
- *India, Japan:* Diverse renewables mix, prioritizing solar, hydro.
- *Thailand:* Varied energy mix, bioenergy leads at 12% among renewables.
- *Pacific Islands:* Pacific relies on solar, Tokelau leads; Fiji mixes hydropower, bioenergy.

## 3. Charting the Course: Projections and Influential Factors in Renewable Energy Trends

- Renewable investments in Asia-Pacific to reach \$1.3 trillion by 2030, doubling from the past decade.
- Solar and wind energy to dominate future installations, driven by cost declines and government policies.
- Innovative technologies like carbon capture, hydrogen, and biomass crucial for reducing power sector emissions.

Figure 2. Renewable energy share of electricity generation (%) by technology and region/country, 2021



Source: IRENASTAT Online Data Query Tool

## Summary

1. **Key Value Chain Segments:** Manufacturing/construction, Installation, and Operations and Maintenance
2. No overall global employment estimate available (Figure 3)

### Hydropower:

- *Global.* Manufacturing (65%), Installation (29%), O&M (6%)

### Solar PV:

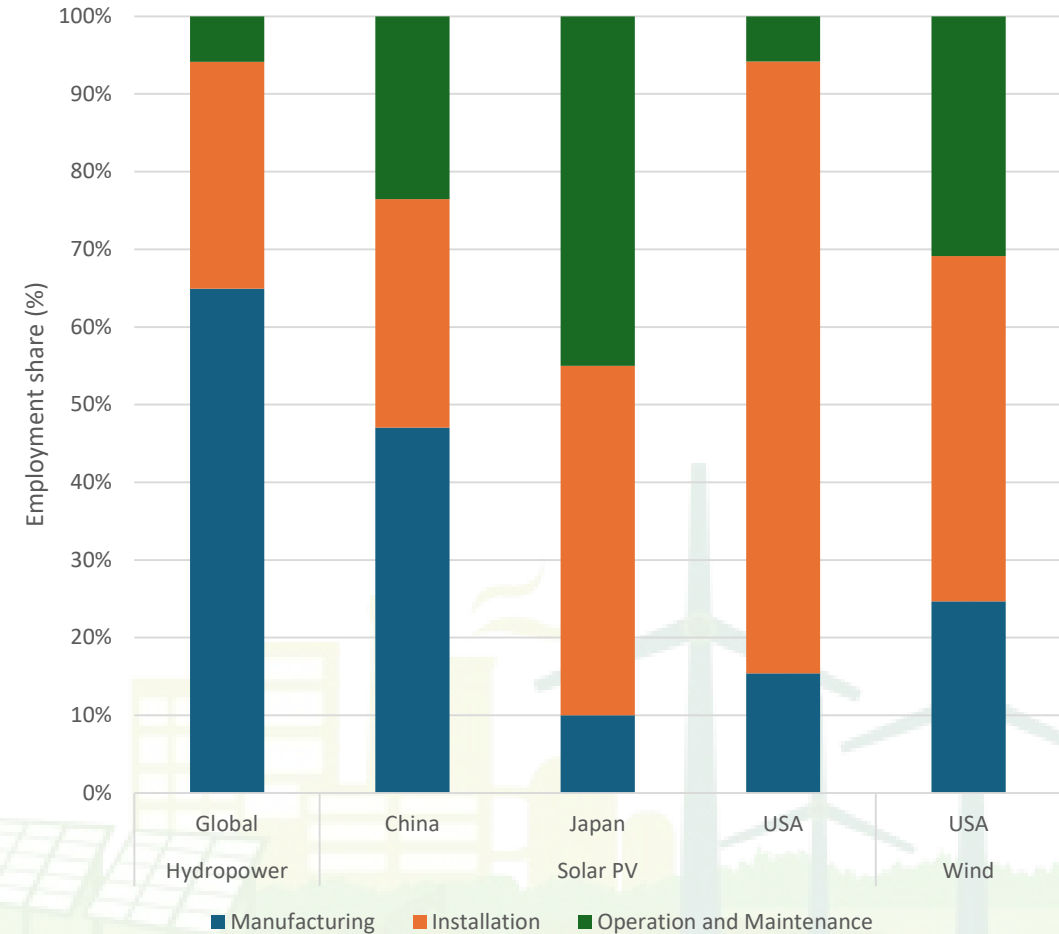
- *China.* Manufacturing (47%), Installation (29%), O&M (24%)
- *Japan.* Manufacturing (10%), Installation (45%), O&M (45%)
- *USA.* Manufacturing (10%), Installation (79%), O&M (6%)

### Wind:

- *USA.* Manufacturing (25%), Installation (44%), O&M (31%)

3. Installation phase typically generates the most jobs, influenced by factors like technology, region, and manufacturing origin.
  - **Japan:** 88% of solar PV shipments in Q1-Q3 2021 were foreign-made modules, highlighting heavy import reliance.

Figure 3. Employment Distribution Across Renewable Technologies: Manufacturing, Installation, and Operation & Maintenance



# Message 3: “Collaborative policy action is essential for developing skills in harnessing energy transformation for the renewable energy workforce”

## 1. Impact of Renewable Energy Transition on Workforce and Skilling:

- ✓ Asia-Pacific's renewable energy transition creates over 9 million jobs, representing two-thirds of the global renewable energy workforce (IRENA, 2023).
- ✓ Globally, studies forecast up to 75 million renewable energy jobs by 2050.
- ✓ Notable contributions from China, Japan, and Australia, with China alone adding 400,000 new jobs in 2022.
- ✓ Skilling, re-skilling, and upskilling are imperative to meet evolving job requirements.
- × In Asia-Pacific, 19% classified as high skilled compared to 40% as low skilled in 2022 (ILOSTAT).
- × Rapid change may threaten workers' rights, e.g., forced labour in China's solar industry in Xinjiang region (ESIA, 2024)

## 2. Private and Public Sector Roles:

- ✓ Both sectors play pivotal roles in providing skills training and capacity building.
- ✓ Private sector adapts recruitment strategies for emerging renewable energy technologies.
- ✓ Governments implement policies to support renewable energy education and training, addressing skills mismatches.

Example: In Scotland, 1. Hydrogen Skills Partnership, 2. Energy Skills Alliance, 3. Climate Emergency Skills Action Plan, and 4. Green Jobs Workforce Academy.

## 3. Workforce Distribution and Skills requirements:

- × *Geographical Distribution:* China leads in job creation, but concerns arise over regional disparities and inequalities (Source: Renewable Energy Institute, 2023).
- *Diversification:* Specializations in maintenance, production, and waste management demand tailored training. Australia prioritizes grid integration and energy storage skills in its transition to renewables (Source: Australian Renewable Energy Agency, 2023).
- *Skill Development and Inclusivity:* Japan, Malaysia, and South Korea prioritize technical proficiency and gender inclusivity in training programs.



# Message 4: “Ensuring a Just Transition requires social protection, community engagement, and supportive government policy”

## 1. Successful "just transition" models prioritize:

- ✓ Worker retraining and upskilling
- ✓ Community engagement, including social dialogue
- ✓ Equitable benefit distribution and environment Justice

Example: Germany's Energiewende and Scotland's Renewable Energy Investment Fund demonstrate effective strategies (see case studies, slides 12-13).

## 2. Social inclusion requires:

- ✓ *Community Engagement*: Actively involving affected communities in decision-making processes.
- ✓ *Job Displacement Solutions*: Implementing measures to address job displacement effectively.
- ✓ *Equitable Access*: Ensuring fair distribution of benefits from renewable energy projects.
- ✓ *Livelihood Protection*: Safeguarding the livelihoods of workers impacted by the transition.

Example: Just transition policies in Denmark and Canada provide early retirement and income support (see case studies, slides 14-15)

## 3. Social protection measures:

- ✓ Unemployment benefits, healthcare, and retraining programs are essential components of just transition policies.
- × Addressing high informal employment rates in Asia-Pacific poses a significant challenge to effective implementation.

Example: Australia's Renewable Energy Target has created over 24,000 jobs (see case study, slide 16).

## 4. Government policies play a pivotal role in promoting fairness and equity.

- ✓ Carbon pricing mechanisms incentivize transition.
- ✓ Industry partnerships support social protection and job creation.
- ✓ Strong regulatory frameworks ensure equitable distribution of benefits.

# Renewable Energy Workforce Development Overview: Key Takeaways and Calls to Action

## 1. Key Takeaways for Sustainable Workforce Development:

- *Renewable Energy Opportunities:* The sector offers vast job creation and economic growth potential.
- *Upskilling Imperative:* Essential for meeting evolving job demands and ensuring workforce readiness.
- *Promising Future:* Anticipated growth presents opportunities for skilled workers across sectors.
- *Stakeholder Collaboration:* Crucial for addressing workforce challenges and ensuring a just transition.

## 2. Emerging Opportunities for Workforce Development & Innovation:

- *Technological Advancements:* Continuous innovation needed for rapid changes in renewable energy technologies.
- *Focus on Training:* Programs targeting emerging tech like energy storage and smart grids vital for preparedness.
- *Digitalization & Automation:* Offer efficiency and productivity avenues in renewable energy operations.
- *Learning Platforms & Apprenticeships:* Facilitate hands-on experience and skill development.

## 3. Call to Action for Sustainable Workforce Development:

- *Collaborative Strategy:* Governments, businesses, and educational institutions must collaborate for robust workforce development, ensuring no one is left behind.
- *Investment Essential:* In renewable energy workforce training and education for long-term sustainability.
- *Diversity & Inclusion:* Enhance innovation and creativity in the renewable energy workforce.
- *Policy Prioritization:* Support lifelong learning, skills recognition, and career advancement in the sector.

# Thank you

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## Appendix A: Case Studies in Renewable Energy Transition

# Case Studies in Renewable Energy Transition

## Case Study 1: Germany's Energiewende

### Overview:

- Germany's Energiewende, or Energy Transition, is a comprehensive strategy to shift from fossil fuels to renewable energy sources.
- It aims to achieve ambitious goals for greenhouse gas reduction, energy efficiency, and renewable energy expansion.

### Key Elements:

#### 1. Renewable Energy Expansion:

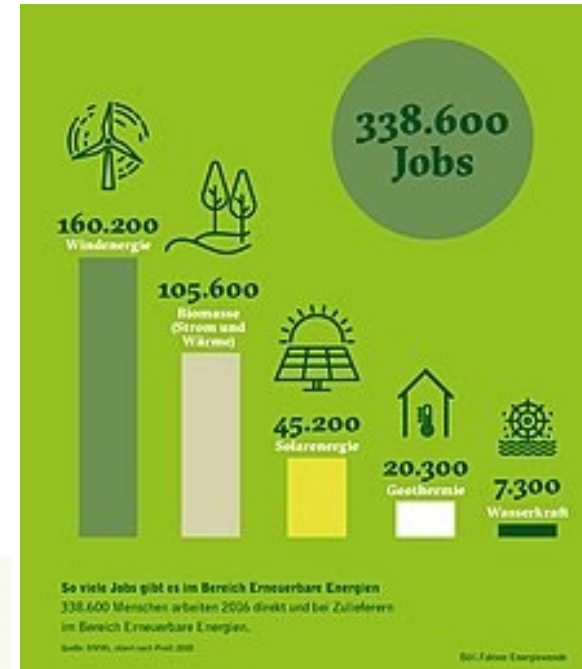
- Germany has significantly increased its renewable energy capacity, particularly in wind and solar power.
- Renewable energy sources accounted for over 50% of electricity consumption in 2020 (BMW, 2022).

#### 2. Job Creation and Economic Impact:

- The Energiewende has led to the creation of over 300,000 jobs in the renewable energy and energy efficiency sectors (BMW, 2022).
- It has also stimulated innovation and investment in clean energy technologies, driving economic growth.

#### 3. Social Inclusion and Support:

- Transition programs have been implemented to support workers in declining industries, such as coal.
- Community engagement and participation have been key components, ensuring local benefit and involvement.



## Case Study 2: Scotland's Renewable Energy Investment Fund

### Overview:

- Scotland's Renewable Energy Investment Fund (REIF) is designed to support the development of renewable energy projects across the country.
- It aims to accelerate the transition to a low-carbon economy while delivering economic, social, and environmental benefits.

### Key Elements:

#### 1. Community-Owned Projects

- REIF has allocated £85 million to support community-owned renewable energy projects (Scottish Government, 2021). This funding enables local communities to actively participate in and benefit from the renewable energy transition.

#### 2. Economic Stimulus:

- Investment through REIF has stimulated job creation and economic growth, particularly in rural areas.
- It has supported the development of renewable energy infrastructure and attracted private sector investment.

#### 3. Environmental Impact:

- Scotland's commitment to renewable energy has contributed to significant reductions in greenhouse gas emissions.
- Renewable energy projects supported by REIF have helped Scotland progress towards its climate targets.

## Scotland is the powerhouse of Europe

for offshore and onshore renewable energy and low carbon projects



### Unrivalled natural resources

Scotland is the windbreak of Europe with over 3.5GW of offshore wind already operational or under construction and 6.4GW in the pipeline.



### £3 billion green portfolio

Scotland will release £3 billion (\$4 billion USD) of green investment projects over the next three years to transition to a carbon neutral economy by 2045.



### 700 renewable energy experts

Scotland has the world's largest energy research group of more than 700 renewable energy scientists, engineers and academics.

# Case Studies in Renewable Energy Transition

## Case Study 3: Denmark's Just Transition Policies

### Overview:

- Denmark has implemented comprehensive just transition policies to support workers and communities during the transition to renewable energy.
- These policies aim to mitigate the social and economic impacts of transitioning away from fossil fuels towards cleaner energy sources.

### Key Elements:

#### 1. Early Retirement Schemes:

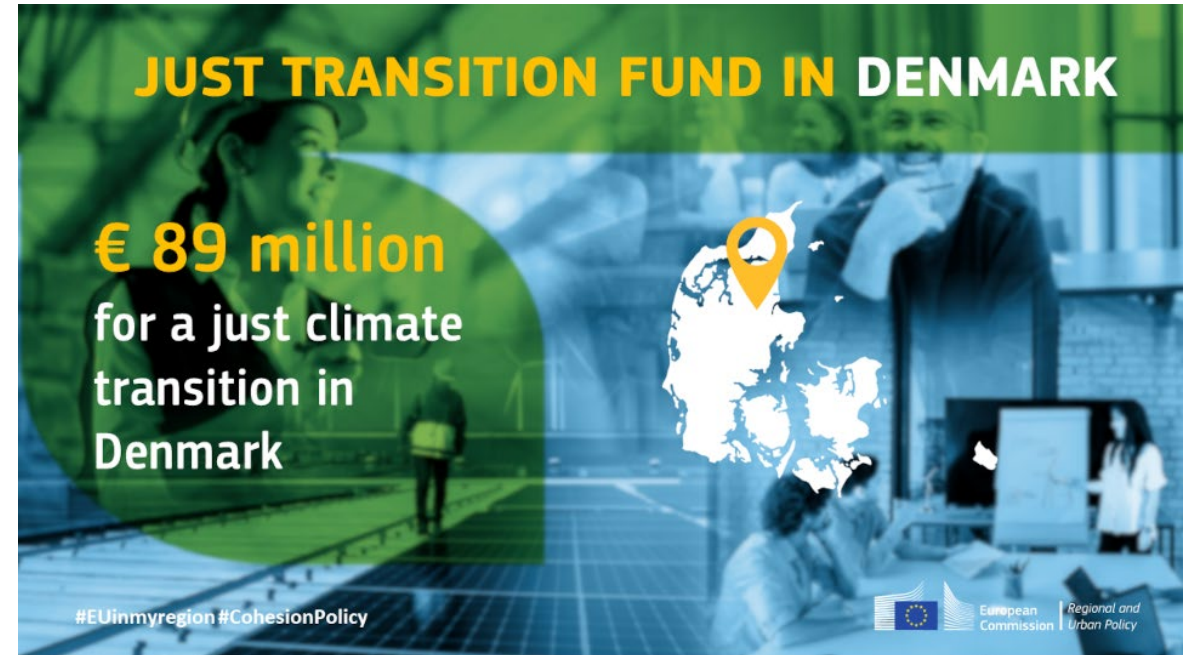
- Denmark offers early retirement options for workers in declining industries, such as coal mining and fossil fuel-based power generation. These schemes provide financial support and assistance with transition to new careers or retirement.

#### 2. Income Support Programs:

- Income support programs are available to workers who may experience job displacement due to the transition.
- This includes unemployment benefits, job training programs, and financial assistance for retraining and education.

#### 3. Community Engagement:

- Denmark emphasizes community engagement and consultation throughout the transition process.
- Local communities are actively involved in decision-making processes and are empowered to shape the transition in ways that benefit them.



## Case Study 4: Canada's Transition Support Initiatives

### Overview:

- Canada has implemented various initiatives to support workers and communities affected by the transition to renewable energy.
- These initiatives aim to ensure a fair and equitable transition while maximizing opportunities for economic growth and social inclusion.

### Key Elements:

#### 1. *Income Support and Retraining Programs:*

- Canada offers income support programs for workers who may lose their jobs as a result of the transition.
- Additionally, retraining programs are available to help workers develop new skills and transition to employment in renewable energy and related sectors.

#### 2. *Just Transition Task Force:*

- Canada has established Just Transition Task Forces at both the federal and provincial levels.
- These task forces bring together government, industry, labour, and community representatives to develop and implement transition plans that prioritize social inclusion and support for affected workers and communities.

#### 3. *Indigenous Partnerships:*

- Canada has engaged Indigenous communities in the renewable energy transition through partnerships and consultations.
- These partnerships aim to ensure that Indigenous peoples benefit from renewable energy development while respecting their rights, traditions, and sovereignty.



## Indigenous Green Economy Initiative

With the support of the  
Government of Canada and Cando



# Case Studies in Renewable Energy Transition

## Case Study 5: Australia's Renewable Energy Target

### Overview:

- Australia has implemented the Renewable Energy Target (RET) to support the transition to renewable energy.
- The RET aims to increase the proportion of Australia's electricity generated from renewable sources to 33% by 2020.

### Key Elements:

#### 1. Job Creation

- The RET has supported the creation of over 24,000 jobs in the renewable energy sector (Clean Energy Council, 2022).
- These jobs span a range of roles, including installation, maintenance, manufacturing, and research and development.

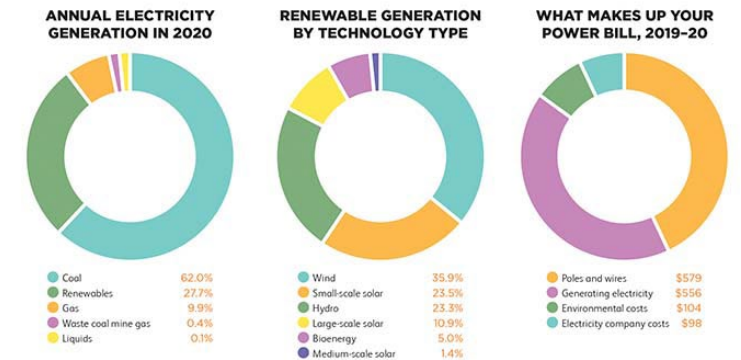
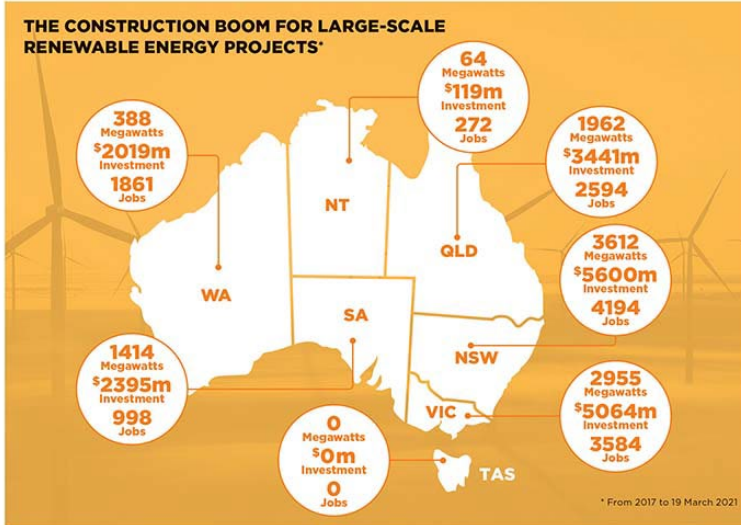
#### 2. Economic Stimulus

- Investment in renewable energy projects supported by the RET has stimulated economic growth and investment in regional areas.
- This has provided opportunities for local businesses and communities to participate in the renewable energy transition.

#### 3. Social Protection Measures

- While the RET has generated significant economic benefits, efforts to ensure fair treatment and social protection for affected workers have faced challenges.
- Additional measures may be needed to support workers in declining industries and address potential job displacement.

## CLEAN ENERGY AUSTRALIA 2021



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