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International Labour Organisation (ILO)

Research Report

Topic 3: The effects on labour globally of the transition from fossil fuel-based to sustainable means of production



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Introduction

The transition from fossil fuels to sustainable means of production is an inevitable, contemporary process the international community is driving. The reasons for this course of action ranges from public awareness of the environment, to independence from foreign economies, or shared efforts to mitigate the negative effects of climate change in the future.

Delegates in the ILO will need to come up with solutions and ideas on how to make fossil fuel phase-out a smooth process for all parts of relevant labour industries. For this, an overview of the status of sustainable production and renewables is needed.

Key Terms

Fossil fuel: Fossilised organic material, primarily hydrocarbons, used for fuel and industrial products like plastic.

Sustainable production: Industrialized creation of products and energy that can be maintained in practice almost indefinitely; examples include plant-grown primary resources, renewable energy and certain types of recycling.

Renewable energy: Energy that is replenished at a rate higher than it is consumed – examples include wind, solar and geothermal energy.

MEDC/LEDC/NIC: More/Less Economically Developed Country/Newly Industrialized Country

Centralised power generation: Power infrastructure that contains a fixed location for high-intensity energy production that is distributed over the grid.

Distributed/localised power generation: A less rigid energy supply system, usually containing several smaller central energy production connected through a flexible power grid.

Background Information

To go in the direction of a smooth transition from fossil fuels to sustainable production, the size of the transition must be outlined; how large will the transition be in a given time frame?

For this, there are 2 major indicators;

The first indicator is organised initiatives. Over the past few decades, several countries have announced plans to cut CO₂ emissions by replacing fossil fuel energy with renewable energy, occasionally achieving the desired results. For example, in January 2017, China announced plans to spend 360 billion USD on the construction of renewable power by 2020¹, and in September, France announced plans to cut out oil and natural gas production completely by 2040.²

The second indicator involves direct or relating projections on the process of phasing out fossil fuels. An important projection made in the International Energy Agency's (IEA) World Energy Outlook estimates the percentage of renewable production of electricity to rise from 21% in 2013 to 34% in 2040, using mean values.³ This increase ties in to a recent report on the cost of renewables, which projects that by 2022, the cost of concentrated solar power will have more than halved.

The effects of such substantial changes will naturally vary with different metrics. An example is different industries. Employment in the photovoltaic solar power industry is very different from employment in the hydroelectric industry in terms of jobs, size and scope of work. Regardless, certain common circumstances can be used to distinguish renewables from fossil-fuel based energy in terms of their content.

One of the most significant changes resulting from growth in sustainable energy is the creation of jobs. The 2017 US Energy and Employment Report reveals that solar, wind and bioenergy industries in the United States each have more employees than the coal industry in total, despite all being significantly smaller in terms of production. The types of employment have

¹ <https://www.nytimes.com/2017/01/05/world/asia/china-renewable-energy-investment.html>

² <https://www.reuters.com/article/us-france-hydrocarbons/france-plans-to-end-oil-and-gas-production-by-2040-idUSKCN1BH1AQ>

³ International Energy Agency – World Energy Outlook 2015

approximately the same distribution, so this factor is ruled out.⁴ This makes it very likely that the transition from fossil fuels will result in a large net creation of jobs.

Still, there are certain factors going against job creation from sustainable production. A large part of the cost of renewable energy goes to employee wages, so a dramatic reduction in the overall cost of renewables could affect employment in sections like construction and manufacturing.

The distinction between centralised and distributed power production is also relevant in the discussion of sustainability. A paper published in Power Systems Engineering Research Center (PSERC) outlines some of the advantages and disadvantages of the two, arriving at the conclusion that the goal should be ‘co-optimization’ of both types of systems. The paper also briefly outlines that distributed power generation is not yet as widespread as centralised power generation and is still relatively experimental.⁵

Some of the advantages of distributed power generation, such as reduction in maintenance and infrastructure costs as well as higher energy efficiency, make it an attractive option for consumers in both MEDCs and LEDCs. Arguably, expansion of distributed power is almost inevitable, as the expected percentage growth in “smaller” energy sources like wind and solar on a commercial level incentivises the creation of flexible energy grids. This is especially the case for smaller countries and organisations that do not possess the funds for large-scale energy projects like hydropower.

One of the likely effects of an expansion of distributed power generation is growth in localised employment. Centralised power production is easier to manage with a smaller administration, and is often more automated than distributed power production; this reduces the cost per unit of energy. However, this can further cause the value of labour to drop, increasing the strain on workers. There are some arguments against distributed power generation. Firstly, distributed power generation comes at a high individual instalment cost. In many cases, this makes it inaccessible to the places that would benefit from it the most, such as regions predominantly without electricity. Since a lot of the economic growth experienced in LEDCs is expanded from a grassroots level, this would be particularly problematic for the latter.

⁴ US Energy and Employment Report 2017

⁵ Meliopoulos, Sakis, et al. – “Centralized and Distributed Generated Power Systems – A Comparison Approach” - Power Systems Engineering Research Center (PSERC) (2012)

Secondly, distributed generation is arguably disadvantageous from a commercial perspective, as it can require high product specification for a range of different consumers and localised energy grids.

Major Countries Involved

All countries are part of the transition from fossil fuels to sustainable production, to a certain extent. The Paris Agreement in 2015 is, if not an indicator of action towards sustainability, then a declaration on the recognition of climate change and how to combat it, with 173 out of 197 ratifications.⁶

However, as briefly outlined, the effects of the transition can not be directly compared from country to country. One reason for this stems from the nature of many types of sustainable production – high start-up costs. A consequence of high start-up costs is the exclusion of less financially capable parties, as the costs make it difficult for the latter to gain enough revenue to cancel out debt resulting from the initiation. This can jeopardize economic growth, which is detrimental to both employers and employees. This makes the distribution of types of renewables somewhat different from MEDCs to LEDCs, and consequently also the effect on the size, conditions and distribution of labour.

Major Organisations Involved

The phase-out of fossil fuels is often done through promotion of alternatives; this is done on a large scale by different organisations, involving manufacturing organisations, supply organisations, financial institutions, specialised conglomerates and many more. For many parties involved in the transition to sustainable production, the commercial component is just as important as, if not more than the policy component; the idea is to privatise it. These are some of the most important organisations in this process:

⁶ United Nations Framework Convention on Climate Change (UNFCCC) – Paris Agreement

ABB Ltd. - The group invests primarily in industrial supplies, robotics and automation technologies, but is experimenting with renewable microgrids for future commercialisation.⁷

Vestas Wind Systems A/S - Vestas was founded in 1898, and is currently the largest producer of wind turbines in the world.

Suntech - Situated in China, Suntech is the world's largest producer of photovoltaic solar power.

European Renewable Energy Council (EREC) - The group is composed of 9 non-profit organisations and concerns itself with research, advocacy and mediation between industries relating to renewable energy.

Relevant Conventions, Resolutions and Papers

A/RES/70/1

Resolution on *Transforming our world: the 2030 Agenda for Sustainable Development* that was adopted by the General Assembly on September 25, 2015.

This contains goals and information on the process of sustainable development, including some of the consequences of jumping from fossil fuel-based energy to green energy in terms of employment among other things.

Employment Working Paper No. 227

ILO publication on *Mainstreaming green job issues into national employment policies and implementation plans: A review*, issued on December 27, 2017.

The paper outlines some benefits of nationalisation of green industry and describes the incentive for the transition from different angles, including arguments from business and labour perspectives.

⁷ <http://www.renewableenergyworld.com/articles/2016/10/encouraging-results-from-abb-s-hybrid-renewable-microgrids.html>

Further Reading:

<https://sustainabledevelopment.un.org/index.php?page=view&type=111&nr=8496&menu=35>

http://www.ilo.org/employment/Whatwedo/Publications/working-papers/WCMS_614440/lang--en/index.htm

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