



# VIENNA ENERGY FORUM-THE VEF VIRTUAL SERIES

## Sustainable Energy and Industry Integration- Session 3



### RENEWABLE ENERGY AND ENERGY EFFICIENCY IN INDUSTRY AND COVID-19 REALITIES

#### 1. OVERVIEW OF KEYNOTE & PLENARY ADDRESS

The session was opened by Smail Alhilali of UNIDO. He outlined the potential role of renewable energy in industrial applications and provided examples while emphasizing the need for upscaling, especially in developing countries. He noted the challenges posed by the Coronavirus to industries in the renewable energy and energy efficiency supply chains, but that there were opportunities associated with efforts to "build back better". Renewable energy and energy efficiency in industry are important pillars of the industry response to addressing the global climate challenges.

#### *SETTING THE SCENE PRESENTATION*

*A scene-setting keynote address were given by: Mr. Alfred Hartzenburg, NCPC*

The keynote address focused on COVID-19 realities and mitigation measures in South Africa, with a dedicated case study on the mPact Group (the largest paper and plastics packaging and recycling business in Southern Africa).

The speaker highlighted that 2019 had been the worst year for electricity load shedding in South Africa but that the country was able to bounce back, suggesting that this may have created greater resilience for industry in response to COVID-19.

The government has identified the Green Economy as one of the main drivers for job creation, with ambitious targets for job creation outlined in the New Growth Path (300,000 new direct jobs could be created in the areas of natural resource management and renewable energy construction by 2030). At a national level, there is a push for increasing installed capacity of, and investment in, renewable energy.

The government has attempted to mitigate the impacts of COVID-19 on these plans through a variety of support measures and the speaker argued that renewable energy and energy efficiency in industry have a key role to play. He demonstrated the benefits associated with the implementation of an Energy Management System (EnMS) and Energy System Optimisation (ESO) at mPact. This includes investments in solar PV and investigations into renewable energy to deliver heat requirements.

The speaker concluded that we have the technologies and solutions, the low hanging fruit, but that we need to see these as starters the main course is coming. COVID-19 has demonstrated what we can do if we want to speed up the development of solutions.

## 2. SUMMARY OF BREAKOUT DISCUSSIONS

### 2.1 GLOBAL PERSPECTIVES

**Sub-question 1: What are the biggest opportunities for different sectors/countries? How has COVID-19 changed this?**

**Energy Efficiency** cannot just be seen as a 'low hanging fruit' option, it needs to be a fully-fledged commitment. There is a need to consider how every unit of energy saved can affect jobs and emissions. The latest shift in energy consumption due to COVID-19 – e.g. home working and home-schooling etc. – has impacted daytime energy consumption, which particularly affects small businesses.

**Scale:** Industry has a large number of sub-sectors, with some competing globally and some smaller ones competing locally. We need different instruments for the larger energy intensive sectors, than for the SMEs in food/beverages/textiles. The Paper & Pulp industry has the potential for onsite heat and electricity generation.

**Investment:** A recent IRENA report highlighted that we need 110 trillion \$US by 2050 to achieve a global energy transition (business-as-usual would be in the order of 90 trillion \$US). Maybe it is possible to use some of these investments in renewable energy to support COVID-19 recovery measures too. We must be stronger on financial responsibility, only giving money to businesses who have a sustainable business model.

**Opportunities:** All countries have opportunities, some have a good political regime, some a good financial regime, some have good resources, or good technical capacity. Africa has good resources (e.g. solar) but still has high unemployment and low electrification. What can be done to address these issues more strategically? Some countries may have the technical capability but are locked into existing infrastructure.

## Sub-question 2: What are the key solutions?

A number of examples emerged during the discussion:

- Electric Motors (through an integrated systems approach)
- Renewable energy (RE) & energy efficiency (EE) for heat (first EE then RE)
- Green Hydrogen
- Digitilization and Artificial Intelligence
- Energy Storage
- Ocean energy (45 IRENA countries have prepared ocean energy frameworks)
- Hydropower and small hydro
- Building the capacities of decision-makers
- Development of policies for new technology innovation
- Financial incentives (i.e. tax reductions, etc.)
- Use of digital technologies
- Self-commitment and local optimization of the companies to increase the share of RE in economy (CSR reporting practices)
- Revision/removal of subsidies for fossil fuels to ensure 'fair market game'

**Financial solutions** could range from improved tax incentives and support for SMEs, to providing attractive payback periods for the agricultural sector to green their energy use. Lowering or increasing energy prices can reduce or extend payback periods (to be considered when price-setting). For example, high-temperature heat pumps are still very expensive with a payback period of up to 15 years.

**Capacity Building** underpins any proposed solutions. Initiatives such as the IRENA Youth Forum or the IRENA Legislators forum<sup>[1]</sup> for Parliamentarians supporting the energy transition.

[1] <https://www.irena.org/parliamentarynetwork/IRENA-Legislators-Forum>

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## 2.2 COUNTRY VOICES

### **Sub-question 1: Given different country contexts and capabilities, how did industries and governments look at RE and EE opportunities for industry as part of the post COVID-19 economic recovery?**

The COVID-19 pandemic has created an urgency around the themes of RE and EE in industry at large, forcing the increased recognition of the role that RE and EE can play for industrial recovery post-COVID-19. A 'burning platform' has therefore been created, whereby countries and their governments are starting to actively promote the uptake of RE and EE through various mechanisms, as well as spreading their pooled knowledge. In this session, inputs were given by representatives from Brazil, China, Egypt, India and South Africa.

**Challenges:** The lack of a 'systems approach' to RE and EE means that country efforts are often isolated to particular sectors, with uncollaborative government ministries, agencies, and industrial sectors of the economy. So, priorities are not always the same and approaches may focus on other areas of the economy (e.g. high unemployment).

**Opportunities and recommendations:** Several opportunities and recommendations emerged from the discussions, with examples of successes in certain countries. The main message was that RE and EE have been recognized as a big area of opportunity for industrial recovery post-COVID, but for successful integration into a country's COVID-19 recovery, the following elements need to be considered:

- Governments have shown active promotion of RE and EE, this would be better if different ministries of government work together (e.g. in India the Minister of energy and the Minister of RE are the same person, helping to align the policies of energy and RE to a great extent).
  - If government departments have not been able to build the capacity to work together, industry can nudge the process along and lead by example by driving policy development in practice (e.g. in South Africa). An independent committee can also be used to drive a consistent national industrial energy policy (e.g. in Brazil).
  - Using a roadmap for the country's economic recovery plan, in particular, one that considers sustainable development through RE and EE (e.g. Egypt vision 2030 which includes targets and sustainability goals, as well as 'Get Ready for Green' plans).
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- Open up a dialogue with stakeholders regarding incentives for industry and commercial sectors to implement EE systems (e.g. in Brazil).
- Huge employment opportunities to be leveraged, in particular when industrial energy policy is linked to employment goals (e.g. in South Africa, India, Brazil).

### **Sub-question 2: How could industry benefit/capitalise on these and are there success stories from different countries?**

- **A systems approach:** Government ministries and agencies work together with the same RE and EE vision and targets e.g. in India where active ministerial collaboration takes place.
- **Capacity building by learning from others in industry:** For example in South Africa, where government has not built the necessary capacity, industries have had to pave their own way and learn from each other. Government legislation and guidelines are slowly starting to make progress due to industry forcing the government to work together and develop a framework for them to operate successfully in the environment.
- **Regulations and standards:** For example, minimum energy efficiency standards are starting to be implemented in South Africa, as well as a carbon tax. In addition, there has been an increased effort towards reporting and transparency around energy usage. In India, the government has set regulations in industry, whereby old motors have to be upgraded to improve their EE. In Brazil, there are plans in place to make compulsory standards for building efficiency in the next few years (already engaging with stakeholders).
- **Financial mechanisms and general support:** Brought on board by government for RE and EE in industry settings - for example the UNIDO Programme for Country Partnership (PCP) in Egypt where a dedicated fund of 170 million Euros has been set up to implement RE projects and EE enhancement during 2020-2025. The success of Green Bonds in Egypt (US\$4.35 billion to date), as well as the implementation of a feed-in tariff for solar prices to the national grid (tariff has been revised several times to complement other measures).
- **Economic incentives for investors:** For example, legislation and incentives for investors in Egypt to encourage SMEs to enter and penetrate the RE and EE supply market. Due to economic incentives in Brazil, a movement from industry and commercial sectors to free-market mechanisms of profit-making has been seen, including the entrance into the energy generation market (mini power plants and selling energy).

- **Industry schemes:** For example, in terms of EE, in India there are energy reduction targets for large energy-intensive sectors, monitored every three years (since 2012). These schemes also promote the creation of jobs, upskilling, supporting local manufacturing industries, and the overall adoption of the clean energy transition.
- **Job creation:** For example, in South Africa, unemployment and poverty levels are extremely high, therefore employment objectives are interwoven into every measure of policy (including RE and EE). In India, it is also recognised that in decarbonising the economy, job opportunities will arise with the opening up of new avenues. Additionally, in Brazil, a study has shown that the EE sector has produced 400 000 new jobs in the last 10 years, especially in the labor-intensive building EE sector. Another point to note here is how Brazil has linked social housing projects to this green building initiative.

## 2.3 ENABLERS FOR PROGRESS

### Sub-question 1: What are the key components for upscaling RE & EE in industry?

EE is difficult and needs to be tackled from multiple dimensions: policy, capacity building, and creating a pipeline of investable opportunities and finance are all critical to delivering energy efficiency.

#### **RE and EE need policy and finance support:**

- For example, a starting point could be minimum energy performance standards (MEPs) followed by a consideration of how to build a finance system on top of that. For example, the Green Climate Fund is working with countries on cooling (relooking at MEPs) and structuring MEPs to access new financial mechanisms. MEPs represent a means for utilities to verify performance.
- In Egypt, EE and RE uptake in industry was very low until regulations were introduced in 2016 (net metering) coupled with a finance facility. This led to a rapid increase in uptake.

**Facilitate uptake of best performing technologies:**

- The Carbon Trust has delivered an energy technology list for the UK for the last two years (a list of EE and clean energy projects) that acts as a route to finance. This provides information on performance and paybacks of technologies technically certified. Technologies on the list are eligible for tax credits. To get onto the list, technologies need to be one of the top 10% performing products. There is interest in developing these technology lists internationally, as a key enabler of access to targeted finance.
- A benchmarking of EE technologies, especially at the product level, was identified as a need in India.

**Facilitate collaboration and collective design of programmes:**

- In India, the Perform, Achieve and Trade Scheme (EE trading programme) has achieved success in part due to targets based on mutual collaborative discussions on what reductions are appropriate for each sector. However, the scheme does not include Micro and Small to Medium Enterprises (MSMEs) and needs this broader coverage to facilitate greater EE implementation in industry.

**Invest in information:**

- In India, the uptake of biofuel is limited due to a lack of dynamic real-time mapping of generation and availability of biomass. Businesses need this to develop sustainable investments.

**Adopt a systems perspective:**

- When scaling up, there is a need to look at the whole energy system - not just focusing on industry or specific applications.

**Focus on RE for industrial high-grade heat applications:**

- RE applications in industrial heat represent a relative gap. There are some solutions for low-grade heat but significant progress is needed in high-grade heat.

**Sub-question 2: How can the opportunities from renewable energy (electricity and heat) applications for industry (including solar energy, wind energy, biomass, renewable heat, waste heat, etc.) be scaled up?**

The discussion focused on the following areas to enable scaling up of RE applications for industry:

**Local energy system and clusters:**

- Industrial clusters facilitate sharing of heating and cooling in an economically viable way. There is an opportunity to build up these zones in mature economies.

**International collaboration:**

- The UNFCCC Conferences of the Parties (COPs) are a great opportunity to face up to decarbonizing industry.
- Collective efforts are needed to bring down generation, transport and storage costs of hydrogen and RE technologies for high-temperature heat. Global markets and mechanisms need to be leveraged and further developed.
- There needs to be a focus on speed. It took 25 years for solar, wind and other renewable electricity generation technologies to become competitive. This process needs international collaboration to be fast-tracked in the context of green hydrogen and other RE technologies for industry.

**Engage with large corporate buyers:**

- Large corporate players can influence smaller players in their supply chain. Engagement and support is needed to achieve scale. For example, H&M looked at 100% RE which drove their supply chain to start exploring how to achieve this. They also provided incentives / ratings to their suppliers. The IFC put additional support in place additionally to further leverage action.

**Support SMEs:**

- SMEs lack access to credit and need support in developing strong business models that can enable access to finance.

**Sub-question 3: How can we drive greater implementation and larger investments in EE and RE in industry and which interventions and sectors emerge as priorities?****Collaboration is critical:**

- While competition is important – collaboration between industries, and industry and government needs to be leveraged to accelerate decarbonization of the industrial sector (i.e. reduce costs of green hydrogen).
- It is critical to create platforms that facilitate trust between different market players (i.e. procurement of green energy). For example, new technologies such as blockchain are helping users to go securely and directly to energy producers, helping to create trust.

**Unlock finance:**

- Financing of RE and EE in industry needs to be easier for existing financial institutions. For example, the capacity of commercial banks needs to be developed to understand the business models, risks and benefits of financing RE and EE in industry. Energy insurance programs, that cover the risk of new technology, can also help close the financing gap.

**Focus on green hydrogen:**

- Green hydrogen could play a significant role in many of the hard-to-abate sectors (such as iron and steel).
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