

# SUSTAINABLE ENERGY AND INDUSTRY INTEGRATION



# CONTEXT

## SUSTAINABLE ENERGY:

- Renewable energy for electricity and thermal needs in industrial processes
- Energy efficiency including circular approaches

## INDUSTRIAL ENERGY CONSUMPTION:

- Globally, the industrial sector—refining, mining, manufacturing, agriculture and construction—accounts for the largest share of energy consumption of any end-use sector, currently at more than 50%.

## INDUSTRY EMISSIONS:

- Are larger than the emissions from either building or transport end-use sectors, and represent just over 30% of global GHG emissions in 2010

# STATUS OF INDUSTRY DECARBONISATION

## SUSTAINABLE ENERGY IN INDUSTRY

- **Some improvements** in industrial energy productivity and emissions reductions, but much to be done
- **Industrial energy consumption grew** at just under 1% per year, between 2010 and 2018
- Despite this increase, **CO<sub>2</sub> emissions from industry dropped by 0.6% in 2018**, indicating a reduction in industrial energy intensity
- **Limited decline of fossil fuel use**, from 73% to 69% of industrial energy mix, highlights the need to continue the search of alternative sources
- **Renewable heat consumption has gained relevance over the last decade** where renewables' industrial energy demand for heat rose to 10% in 2018

## BARRIERS

- **Continued reliance on fossil fuels** – e.g. coal meets as much as 75% of energy demand in iron and steel
- **Renewable energy's inability to produce the high-temperature heat** required by many industrial processes
- **Weak policy environments**– only 25% of industrial energy use is covered by mandatory energy efficiency standards
- **Lack of carbon pricing, emissions trading and border adjustment taxes**, which are key in ensuring competitiveness of low carbon technologies

# OPPORTUNITIES ARISING FROM THE INTEGRATION OF SUSTAINABLE ENERGY INTO INDUSTRY

**Industrial growth objectives that are approached in parallel with sustainable energy and climate goals, can enhance long-term industrial resilience and competitiveness.**

- Contributing to global **Climate Ambition** under the Paris Agreement
- Sustainable energy provides **energy security and energy independence**
- Industry-wide opportunities include increasing renewable energy, decarbonising the hard to abate sectors; increasing low carbon infrastructure; focusing on Small & Medium Sized Enterprises (SME's); and digitalisation.

# LOW CARBON INDUSTRIAL DEVELOPMENT IN THE CURRENT GLOBAL CONTEXT

## COVID-19

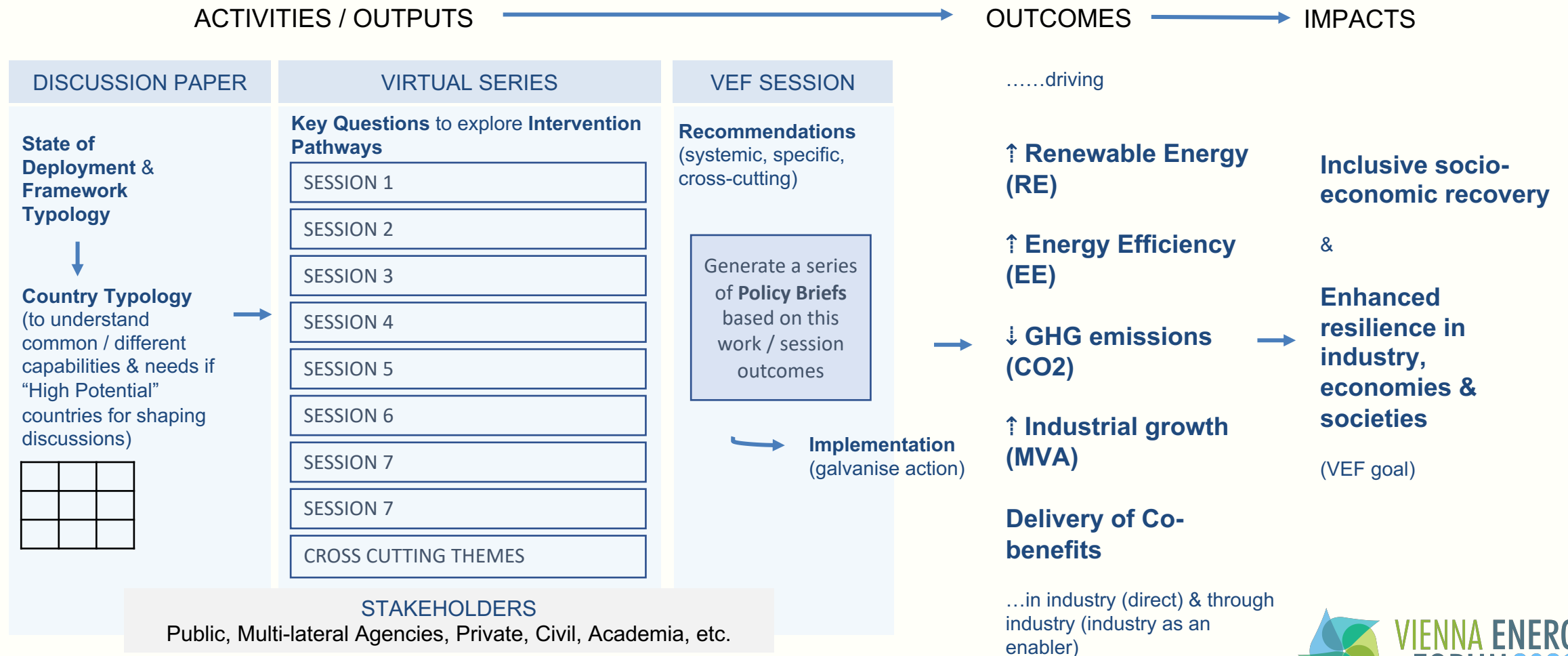
- Impacts on industry include **supply chain disruption, global downturn in investment, increased unemployment and significant shifts in supply and demand**
- Industrial growth plays a **pivotal role in the acceleration of a socioeconomic recovery,**
- **Industry focus in COVID response strategies** include:
  - Value chain diversification (Australia, Finland)
  - SME's (EU, Australia, India, Nigeria, Argentina)
  - Digitalisation & digital economy (South Korea, New Zealand, Singapore, Rwanda)
  - Eco-friendly growth (South Korea)
  - Technology-driven growth (India and China)
  - Agro-processing and technology (New Zealand)
  - Low carbon transport subsidies (Italy , France)
  - Infrastructure construction (Nigeria, Argentina, New Zealand)
  - Hydrogen (EU, UK, Germany, Norway)
  - Informal sector support (Nigeria)
  - Decarbonising heavy industry (UK)
  - Increasing renewables (Denmark, Nigeria, Morocco)

## NATIONALLY DETERMINED CONTRIBUTIONS (NDCs)

- Industry related measures in NDCs include **specific emission reduction targets, energy management and energy efficient programmes, and increasing renewable energy generation**
- NDCs are a **good proxy to identify potential investment and support opportunities** for low-carbon industrial growth in the specific country
- NDCs offer a platform to **recognise a country's progress** towards its national climate efforts and showcase projects and programmes in a particular sector e.g. industry



# PROCESS IMPACT PATHWAY FOR SUSTAINABLE-ENERGY INTEGRATION



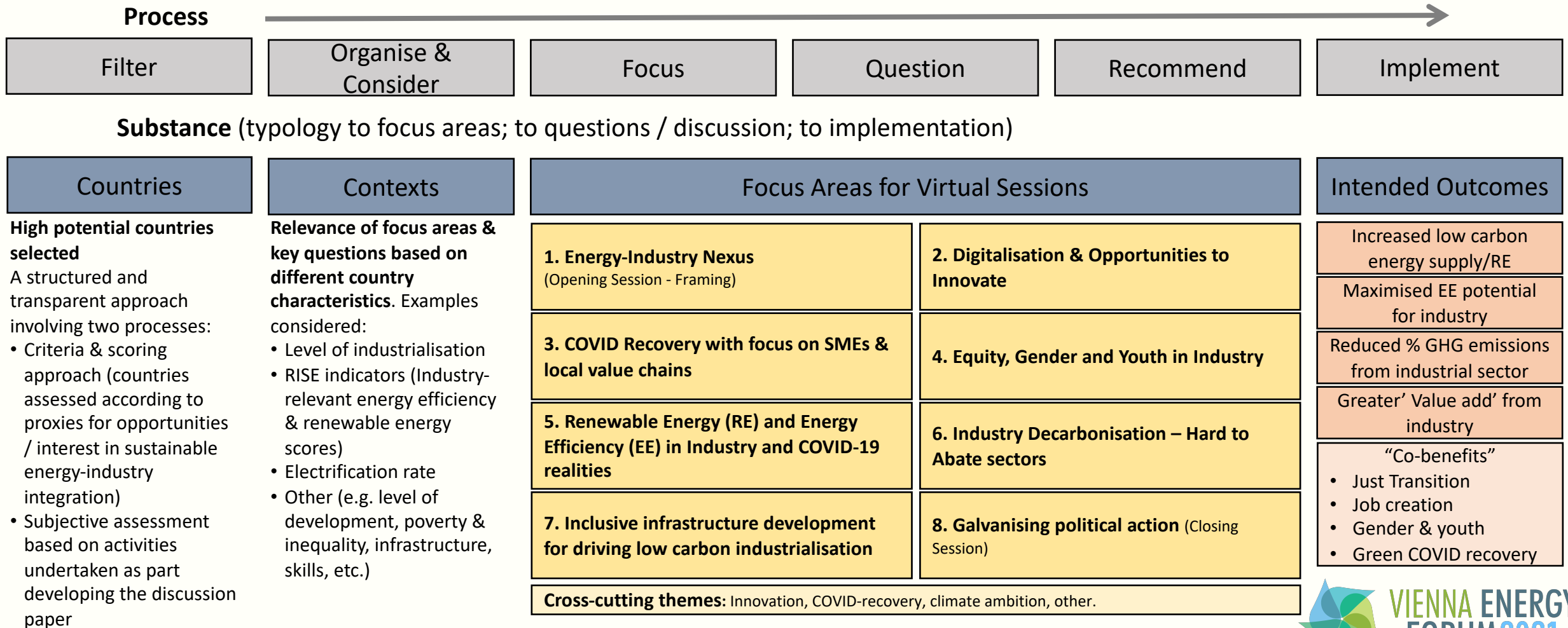
# COUNTRY CATEGORISATION

## Aims:

- Help identify countries where support from UNIDO could be used most effectively to help achieve sustainable energy-industry integration, given different capabilities and contexts
- Identify common priority focus areas (barriers, enablers, issues or themes) and the key questions to unlock impactful interventions
- Explore a set of recommendations, relevant to categories of countries, and to demonstrate multiple intervention pathways to achieve sustainable energy-industry integration



# TYPOLOGY FRAMEWORK





# FILTER INDICATORS

INDICATOR	DESCRIPTION
UNIDO's Programme for Country Partnership country (Y/N)	Aligned with the national development agenda and focused on sectors with high growth potential, the programme supports a country in achieving its industrial development goals
Industry in NDC (Y/N)	Climate Watch (WRI) assessment of country NDC's and the extent to which they commit to (action) or seek support for (gaps & needs) achieving the SDGs (filtered according to SDG 9)
Top 10 industrialised "developing" country (by Manufacturing in total value added (%))	Level of industry as a proxy for potential to explore sustainable energy-industry integration
Top 10 non-Annex I GHG emitter (absolute, tCO <sub>2</sub> e)	Level of GHG emissions as a proxy for mitigation potential associated with industry
Clean Energy Investment Potential (score above 2)	An index describing the investment potential for clean energy in 104 developing countries
UNIDO country office (Y/N)	Proxy for interest and potential

\*Complemented with a qualitative, more subjective, approach

# PROCESS OF ENGAGEMENT & SUPPORT

- Ideas to action in 2021: SEforAll (Feb 2021) to VEF (Jul 2021) to COP26 (Nov 2021)
- VEF consultation (Oct 2020 – May 2021):
  - 1) Energy-Industry Nexus (Framing Session)
  - 2) COVID-19 Recovery with focus on SMEs & local value chains
  - 3) Renewable Energy (RE) and Energy Efficiency (EE) in Industry and COVID-19 realities
  - 4) Equity, gender and youth in industry
  - 5) Industry Decarbonisation - Hard to Abate Sectors
  - 6) Digitalisation and Opportunities to Innovate
  - 7) Inclusive infrastructure development for driving low carbon industrialisation
  - 8) Galvanising political action

(Key cross-cutting factors: COVID-19, innovation, climate ambition, co-benefits)
- Open to others

# VIRTUAL DISCUSSION SESSIONS (2020-21)

The virtual sessions aim to:

- Provide a **platform to collectively explore** intervention pathways available to countries looking to achieve sustain-able energy-industry integration, given different capabilities and contexts;
- **Facilitate learning and partnerships** that can unlock these opportunities;
- **Collectively inform a set of policy briefs and other initiatives** to be undertaken ahead of the VEF; and
- **Provide a basis for designing VEF sessions and a potential global initiative** that can galvanise action towards the intended outcomes.

# TARGET AUDIENCE FOR VIRTUAL DISCUSSIONS

- Key targets are Ministries (Industry, Energy):
  - policy-makers in government are critical
  - responsible for motivating action on the ground
  - interact with the private sector
  - need to take account of civil society
- VEF: opportunity to align key actors and institutions; to bring all relevant stakeholders into these discussions, and gain insights from different perspectives, e.g.:
  - multi-lateral donors/banks & IFIs
  - international players working on the ground
  - relevant academics
- Others to invite for future virtual discussions?  
Your input is welcome!

# YOUR COMMENTS?

**Practical  
ACTION**

VEF consultation (Oct 2020 – May 2021):

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# SESSION 1: ENERGY-INDUSTRY NEXUS

**Main question:** What are the next steps to integrate sustainable energy in industry to ensure low carbon industrial growth and transformational development outcomes?

## ISSUE 1

- Which countries offer the most potential for sustainable energy-industry integration? What evidence can be used to best identify these countries and prioritise the intervention pathways to be explored?

## ISSUE 2

Which are the most important enablers to allow effective interventions that consider dimensions relevant to country's capabilities and contexts?

## ISSUE 3

How can positive outcomes related to sustainable energy-industry integration be best demonstrated and disseminated, both in and between countries?

## INTENDED OUTCOME

Small group of countries identified, along with focus areas, as a priority list to engage with in the global initiative.