



INCLUSIVE ENERGY TRANSITIONS

MESSAGES FOR
THE G20 FORUM

ACT4EARTH

SDG CHARTER POLICY BRIEF

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ABSTRACT

Inclusive energy transitions are key to achieving sustainable development and climate goals. The concept of just transitions around coal in the context of energy supply and mitigation have gained discursive traction in recent times and further move forward towards the people-centred transition approaches. However, these discourses dominantly focus more on energy supply and household energy in terms of cooking and lighting. Other sectors such as agriculture, micro, small and medium enterprises, and transport are not prominent in the socioeconomic narratives around energy transitions narratives. There is thus a scope for factoring inclusivity in demand side interventions more strongly. Further, demographics and socio-economic characteristics including gender dimensions play a vital role in the decision making of an economic agent and thus in turn, in implementing any policy intervention, focusing on demand side. Inclusiveness cannot be achieved without addressing the supply and demand sides simultaneously. Thus, factoring inclusion of the demand side interventions in energy transitions is an emerging area and needs to be understood better. Drawing from the experience of three energy demand sectors of agriculture, MSMEs, and transport in G20 countries, this policy brief attempts to strengthen the case for the energy transitions narrative to focus on inclusive clean energy transitions from demand side perspective.

Keywords: energy transitions; G20; demand side measures; SDGs



INTRODUCTION

Ensuring access to affordable, reliable, sustainable, and modern energy for all, is Goal 7 of the Sustainable Development Goals (SDGs). It is important to note that the nature of access is also qualified by being reliable and affordable enough to ensure the fulfilment of a basic bundle of energy needs to meet development objectives, that is, the lifeline energy.

The concept of Just Transitions around coal in the context of energy supply and mitigation have gained discursive traction in recent times. Institutions such as multilateral development banks, at COP26, issued a joint statement communicating that they would support Just Transitions and climate change mitigation in communities, regions, and sectors directly impacted by the clean energy transitions (ADB, 2021). Further, the International Energy Agency has moved away from the labour-centric undertones of Just Transitions, opting instead for different nomenclature of People-Centred Clean Energy Transitions. While keeping job-related transitions still a focus of the narrative, this new framework places “employment, equity, inclusion, affordability, access and sustainable economic development at the centre of the process” (IEA, 2021). However, the people-centred transition approaches presently focus more on household energy access issues including cooking and lighting. Other sectors such as transport, industry or micro, small and medium enterprises (MSMEs), and agriculture, which are one of the highest greenhouse gases (GHGs) emitting sectors, are not prominent in the mainstream energy and Just Transition narratives and there is a scope for factoring these more strongly.

The Russia–Ukraine conflict situation has had an impact on energy dynamics especially in the EU where countries are speeding away from reliance on fossil fuels. Increasing the share of renewable energy also means that energy demand side needs to respond to this change in the energy mix. Demographics and socio-economic characteristics including gender dimensions play a vital role in the decision making of an economic agent and thus in turn, in implementing any policy intervention, focusing on demand side. To meet the imperatives of inclusion in energy transitions in terms of availability, accessibility, affordability, awareness, acceptability, and reliability of energy and leaving no one behind, policy interventions largely focus on supply measures and household demand side. Inclusiveness cannot be achieved without addressing the supply and demand sides simultaneously. Thus, factoring inclusion the demand side interventions in energy transitions is an emerging area and needs to be understood better.

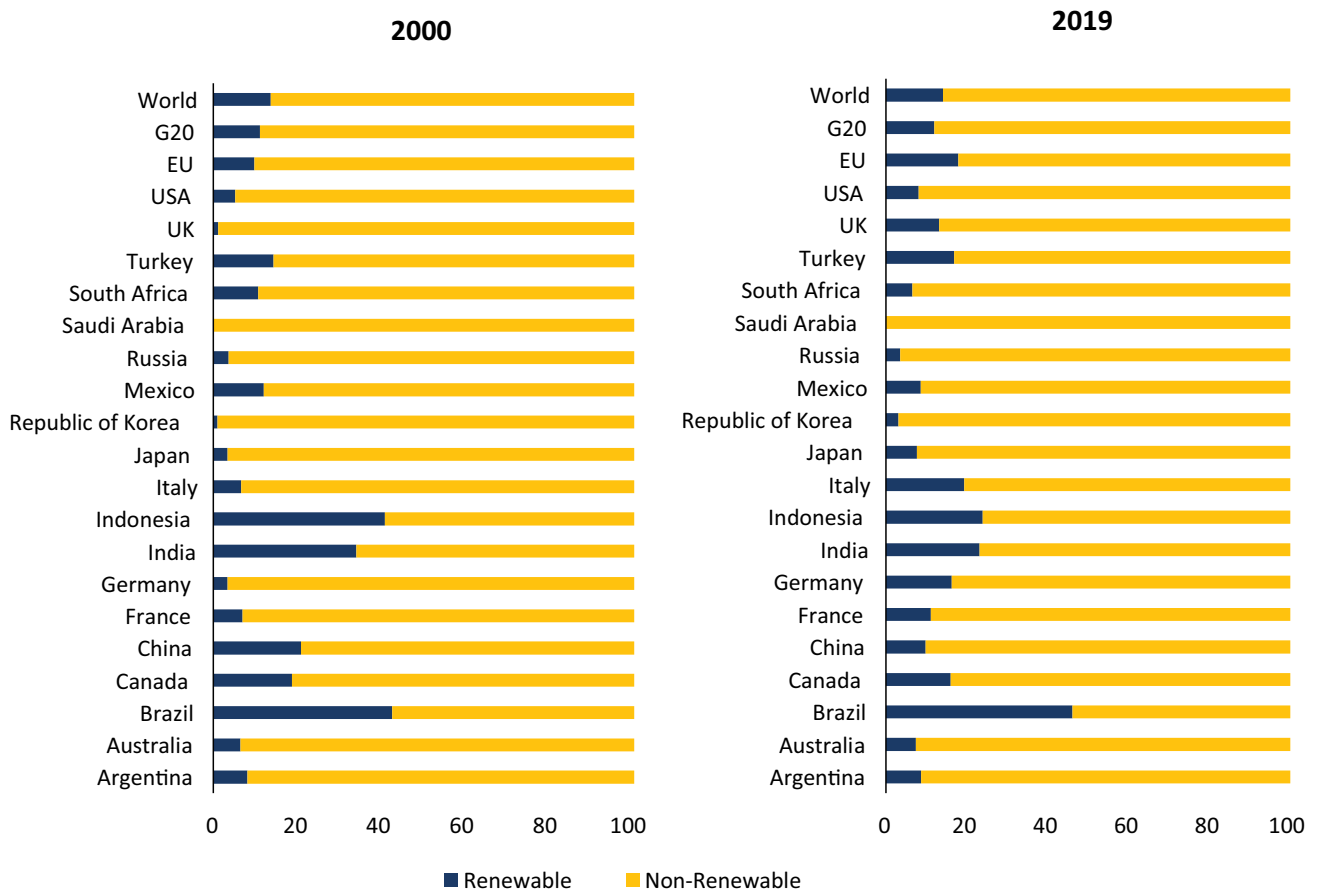
With the above background, TERI undertook an analysis, which is presented in this policy brief. The purpose of the exercise was to strengthen the case for the energy transitions narrative to focus on inclusive clean energy transitions from demand side perspective. The study focuses on the three energy demand sectors of agriculture, MSMEs, and transport. More than one-third of the world’s energy—71.6% in 2019—was consumed by G20 countries and the EU. Considering this, the analysis focuses on trends and policy approaches in G20 countries. The methodology includes time-series analyses of both energy supply and energy demand side for G20 countries and the EU. Policy approaches and gender dimensions in G20 was analysed based on literature available. TERI further validated the study findings through a virtual policy dialogue.

ENERGY TRENDS FOR G20

This section examines the trends of G20 for the period of 2000 to 2019 using IEA data. Despite of having many supply side policy interventions towards clean energy transitions, the percentage share of renewable energy to its total primary energy supply for G20 was 12% in 2019, which had increased just by 1.6% over last two decades, time span of 2000–2019. Even the percentage share of coal to its total primary energy supply for G20 had increased by 4.8% over the same period, and that of oil has declined by 6%, however.

The percentage shares of renewable and non-renewable energy to its total primary energy supply for the years of 2000 and 2019 have been depicted in the below figures (Figure 1) for G20 countries. The top three countries with highest energy supply from renewable resources are Brazil, Indonesia, and India for both the years 2000 and 2019. Although Brazil, Indonesia and India remain the top three countries in 2019 over 2000, the percentage share in Brazil had increased by 6.5% in 2019 from 2000; that of both Indonesia and India had declined by 14% and 8.5%, respectively. Similarly, the percentage share of renewable energy to its total primary energy supply had declined by 9.6% in China. However, the percentage shares of renewable energy to its total primary energy supply had risen in Italy, Germany, UK, EU, and France as per the highest percentage increase, respectively. In addition, it is specifically noticeable that the percentage share of renewable energy source to its total primary energy supply is almost insignificant for Saudi Arabia as the country mostly depends on oil and natural gas due to its abundance in non-renewable resources. However,

FIGURE 1: PERCENTAGE SHARES OF RENEWABLE AND NON-RENEWABLE SOURCES IN PRIMARY ENERGY SUPPLY FOR G20



Note: Renewable energy includes hydro, wind, solar, biofuels, and waste. Non-renewable energy includes coal, natural gas, nuclear, and oil.

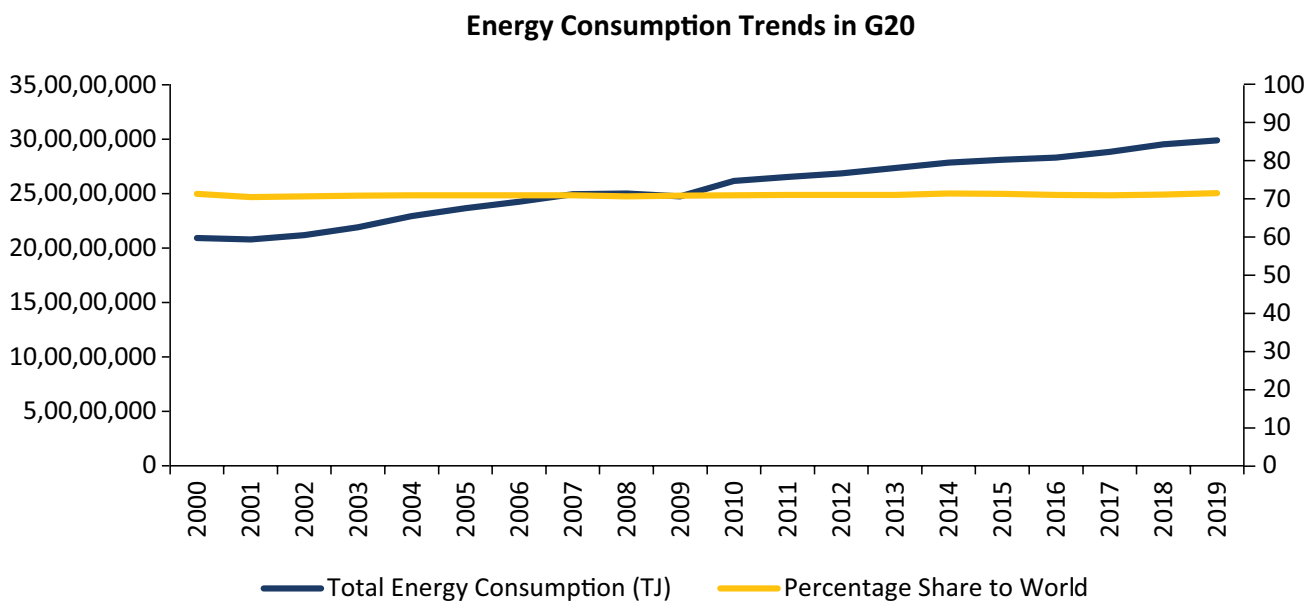
Source: Based on IEA (2022)

the country had increased its percentage share of renewable energy resource supply in 2019 as compared to 2000. Simultaneously with rising renewable energy supply, few countries among G20 had declined their non-renewable energy supply and few countries had raised it in 2019 as compared to the year 2000.

Between 2000 and 2019, UK, Argentina, USA, EU, Canada, and Germany have reduced their coal dependence, whereas the share of coal in primary energy supply has significantly risen in Indonesia, India, Japan, and Republic of Korea. Among the G20 countries, all entities have reduced the share of oil in primary energy supply except South Africa, UK, and Australia. For the period analyses, the percentage decline in oil supply was more than 5% for Italy, Republic of Korea, Mexico, Brazil, Turkey, Japan, Saudi Arabia, Indonesia, and Argentina. Although Saudi Arabia is highly dependent on supply of oil and natural gas, the country had declined its percentage share of oil supply by around 6% though that for natural gas has increased by around 6%. A majority of G20 countries increased their dependence on natural gas in percentage share except Indonesia where the decrease was small. For Japan and Germany, the percentage share of nuclear energy supply has reduced by 12.2% and 6.5%, respectively in 2019 when compared to 2000.

On the demand side, the share of G20 to world’s total energy consumption increased from 70% in 2000 to 72% in 2019. Moreover, the aggregate energy consumption of G20 has shown an increasing trend over the period of 2000–2019 and will increase with further development (Figure 2).

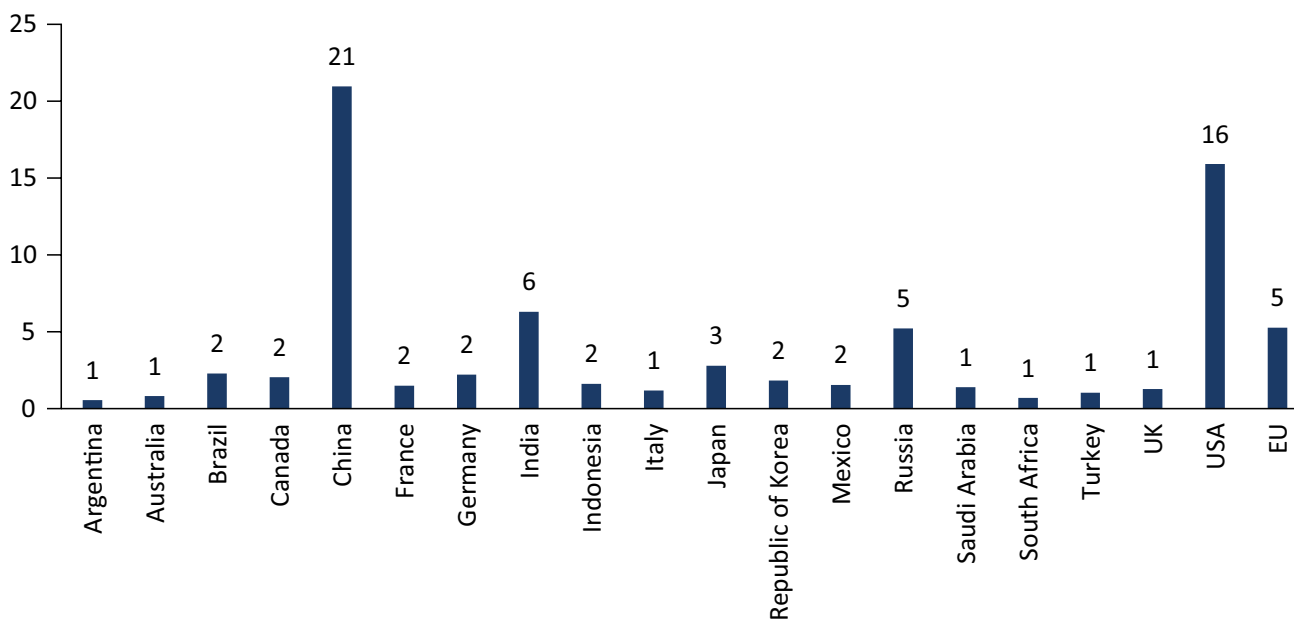
FIGURE 2: ENERGY CONSUMPTION TRENDS IN G20 COUNTRIES



Source: Own calculation based on IEA (2022)

The percentage share to world’s total energy consumption has shown a slight declining trend (Figure 2), indicating that energy consumption of rest of the world has been decreased slightly over the period of 2000–2019. Further, among the G20 countries, the total energy consumption is highest in China, USA, India, EU, and Russia in 2019. The percentage share of G20 countries and EU to the world’s total energy consumption for the year 2019 is represented in Figure 3.

FIGURE 3: PERCENTAGE SHARE OF G20 COUNTRIES TO THE WORLD'S TOTAL ENERGY CONSUMPTION IN 2019

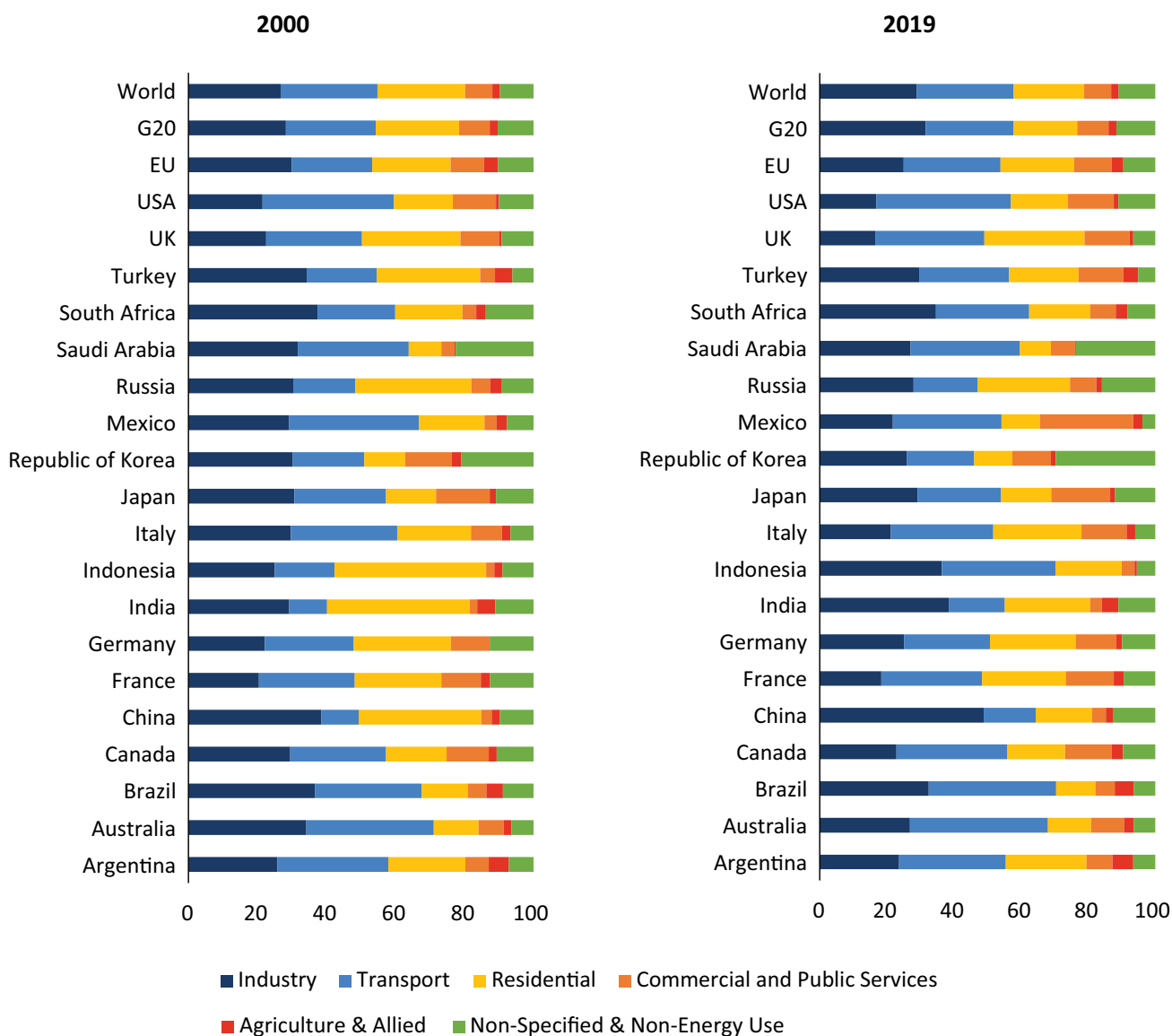


Source: Based on IEA (2022)

However, the renewable energy supply is highest in Brazil, Indonesia, and India, the demand side picture is little different as the countries with highest percentage share of energy consumption have less than 20% of renewable energy supply, except India with 23%. Hence, we can say that India is moderately in a better position in terms of energy transition as compared to other G20 countries. To make it people-centred energy transition, we need to focus on energy consumption at sector level rather than the overall energy consumption. The energy consumption share, in 2000 and 2019, across different sectors for G20 countries are depicted in the following figures (Figure 4).



FIGURE 4: PERCENTAGE SHARE OF ENERGY CONSUMPTION ACROSS SECTORS FOR G20 IN 2000 AND 2019



Source: Based on IEA (2022)

From the above figures, it has been clearly depicted that the percentage shares of energy consumption are significant for industry, transport, and residential sectors, while it is minimum for agriculture and allied sectors. Although the percentage share of energy consumption in agriculture and allied sectors is less for most G20 countries, agriculture sector is important considering the socio-economic relevance. The top three countries with highest share of energy consumption in industry sector are China, India, and Indonesia. The top three countries with highest share of energy consumption in transport sector are Australia, USA, and Brazil. Again, the top three countries with highest share of energy consumption in agriculture and allied sectors are Argentina, Brazil, and India. The sectoral trends of energy consumption for all G20 countries and the EU are represented in Table 1.

Table 1: Energy consumption trends for G20 over the period 2000 to 2019

Countries	Sectoral Trends		
	Transport	Industry	Agriculture & Allied
Argentina	Increasing 2014 onwards	Declined and constant after 2006	Constant around 5–8%
Australia	Increasing	Decreasing 2001 onwards	Constant around 2–3%
Brazil	Rising 2006 onwards	Declining 2007 onwards	Constant around 4–6%
Canada	Increasing 2004 onwards	Falling after 2004 and constant 2009 onwards around 22%	Constant 2005 onwards around 2–4%
China	Increasing	Sharp increase after 2003 and declining 2010 onwards	Constant around 2–3%
France	Increasing	Constant 2011 onwards around 18–20%	Constant around 2–3%
Germany	Constant around 25–27%	Constant 2007 onwards around 23–26%	Constant around 1%
India	Increasing	Increasing	Constant around 4–5%
Indonesia	Rising 2006 onwards	Rising 2016 onwards	Constant around 0–2%
Italy	Constant around 28–31%	Declining till 2018 and slight rise 2018 onwards	Constant around 2–3%
Japan	Slight decline	Slight decline	Constant around 1–2%
Republic of Korea	Constant around 18–21%	Decreasing	Decreasing
Mexico	Sharp decrease 2018 onwards	Sharp decrease 2017 onwards	Constant around 2–3%
Russia	Slight decline 2013 onwards	Sharp decline 2016 onwards	Decreasing
Saudi Arabia	Increasing 2010 onwards	Sharp decrease 2010 onwards	Constant around 0–1%
South Australia	Increasing 2009 onwards	Decreasing 2009 onwards	Slight increase 2010 onwards
Turkey	Sharp increase 2011 onwards and then decline 2016 onwards	Sharp increase 2016 onwards and then decline in 2019	Increasing 2007 onwards and then decline 2011 onwards
UK	Increasing	Decreasing	Constant around 0–1%
USA	Increasing and then decline 2017 onwards	Constant 2002 onwards around 16–18%	Constant around 0–2%
EU	Rising 2013 onwards	Declining and constant 2010 onwards around 24–25%	Constant 2002 onwards around 3%

GENDER AND ENERGY TRANSITIONS



The case of women in the energy transitions discussion, whether as agents of supply, in leadership roles, or as beneficiaries, require specific approaches to be meaningfully mainstreamed and benefit from energy transitions. The question arises as to how and to what extent a transition to cleaner energy would contribute to gender and social inclusion. One of the driving channels to influence human decision is social media, and with the help of media gender and social inclusion can be made inclusive in the clean energy transition process. One such example is presented in Box 1.

In terms of policy level interventions, literature suggests that gender disparities have rarely been addressed as part of national energy policies and only a few energy policies have included gender mainstreaming in their frameworks (Oparaocha & Dutta, 2011; Cecelski E. , 2005; Köhlin, Pattanayak, & Wilfong, 2011). The non-availability of gender-disaggregated data to inform energy policies is cited as a major reason for the near absence of gender considerations in the energy discourse (Clancy J. , Winther, Matinga, & Oparaocha, 2011). However, governments across the globe are recognizing the importance of gender inclusion in the energy transition process and are taking steps in the right direction, to initiate changes in existing norms.

Public Perceptions on Gender Inclusion and Clean Energy Transitions: lens of media reportage

Women are often the most affected by energy insecurity and their participation in clean energy transitions journey puts forth a complex narrative. Media reportage on the subject attempts to capture this inherent complexity.

A growing number of media reports, particularly in the formats of special features, opinion pieces, and long-form stories, have explicitly addressed the issue of women's engagement with the process of energy transitions. They deal with its multiple facets, empowerment stories from ground zero, women's expanding engagement with diverse renewable energy sectors, limitations and scope of engagement, and accentuating the need for long-term strategies to overcome systemic disadvantages.

Media reports deal with the growing employment in the renewable energy sector and also the rising presence of women in it. Reportages touch upon the quantitative presence of women in the renewable energy sector and often mention the percentage of workforce they constitute. However, they are not blinkered by numbers either, and at least, a handful of stories take a deeper look to unearth and report on the hindrances women in the sector encounter. A narrative strategy frequently adopted to cover the participation of women in the renewable energy sector has been to focus on individual stories to highlight the impact of larger programmes. For instance, media reports on the 'Solar Mamas' of Tilonia in Rajasthan where rural and underprivileged women from across the world learn to make solar and photovoltaic panels make an impactful story (Iqbal, 2018).

However, few reportages zoom in on the gender implication of clean energy demand side policies in agriculture, MSMEs and transport sectors and there is a need to look at them from a gender perspective and contextualize them against ground realities, and that leaves immense scope for stories in the segment. The media can play a significant part in representing the gaps in the energy transition mechanism, especially through reportage from the ground on clean energy demand interventions in the agriculture, MSMEs and transport sectors. Gender aspects at the micro-level needs to be covered. The effectiveness of demand-side interventions of programmes and policies can be covered including specific lacunae in implementation, and the scope for betterment can find expression through media reports. The media is an effective voice in registering systemic gaps.

With the media being a vital source of information on the evolving sector as well as in communicating the immense potential it holds for women, sensitization workshops for journalists on gender equity and access across the renewable energy value chain can help set forth a diversity of conversations on the subject. Demand side interventions such as clean energy powered and energy efficient farm implements, clean transport, and clean energy technologies in MSMEs sector need to be examined from a gendered perspective. Greater focus by the media on the gender aspect of policies on energy transition and framing the narrative beyond identifying clean energy access in terms of solar panels, LPG cylinders and cooking stoves will further enable the role of women as proactive players in the clean energy transitions dynamic.

In general, most of the G20 countries have policies related to mainstreaming gender based on gender equity, gender equality, women empowerment, etc. But there exist very few gender inclusion policies in the three sectors, that is, transport, MSMEs, and agriculture. However, the index of women empowerment in agriculture is highly significant for many G20 countries. For example, for Bangladesh the index value is 0.749 and that for Western Highlands Guatemala, Mexico is 0.692 (IFPRI, 2012). In India, about 13% of MSMEs are owned by women (Singh, 2021). Less than half of the women population in developing countries like India avail public transport (Sun, 2021), mostly due to affordability and safety issues.

But very few policies are present in G20 related to gender inclusion in these three sectors. For example, Canada has promoted gender equality in the energy sector globally and encouraged voluntary commitments by both public and private sector organizations to work towards equal pay, equal leadership, and equal opportunities for women in the energy sector by 2030. The Government of France has mandated disclosure and data transparency on gender diversity in the energy sector where a “women-men equality index” is mandatory to maintain for every company including energy sector with at least 1000 workers. Further, Germany measures the increase in share of women in upper management positions in the energy sector under the Federal Ministry for Economic Affairs and Climate Action policy. Very few G20 countries, for example, India, Italy and Switzerland in EU provide credit support for women headed MSMEs. For example, in Switzerland, Société coopérative de cautionnement SAFFA, for women provides security through a guarantee and allows female entrepreneurs to access loans at good rates, and the Government of Italy, with the help of the European Investment Bank, provides €200 million of credit for SMEs, with at least 25% going to women-led businesses (Robotti, 2019). In India, women used to get credit access through the self-help groups (SHGs). Further, only India and Mexico have addressed the issue of gender inclusivity in transport sector. In the capital of India, New Delhi, the government has introduced the pink ticket, which makes the bus fare free for women. Mexico City has pink buses, which only allow women to use them to make public transport safer for women. But there is no such policy in G20 countries related to gender inclusion in agriculture, specifically related to irrigation systems and post-harvest technologies, which has potential to reduce drudgery.



POLICY INSTRUMENTS IN G20 ON CLEAN ENERGY TRANSITIONS FROM THE DEMAND SIDE PERSPECTIVE



The popular policy instruments for energy transitions are cutting subsidies on fossil fuels, promotion of subsidies on renewables, promotion of distributed renewable energy generation, promotion of new technologies, etc. But most of the practices are focused on supply side of the clean energy transitions. There needs to be a greater focus on policies and practices that cater to demand side of energy transitions. COVID has adversely affected the community, but the scale and level of impact varies across stakeholders and countries. Table 2 lists key policy instruments prevalent in G20 in the sectors of transport, MSMEs, and agriculture.

Table 2: Sector-wise policy instruments in G20

Sectors	Policy Instruments
Transport	<ul style="list-style-type: none"> • Subsidies on purchase of electric vehicles • Direct tax rebates and tax benefits • Indirect tax rebates and benefits such as exemption from import duties on electric vehicles, less tax on CNG compared to diesel and petrol • Investment on infrastructure development such as infrastructure for public charging stations for electric vehicles, CNG refuelling, and public transport
MSMEs	<ul style="list-style-type: none"> • Access to credit for clean energy technology upgrading • Subsidies on clean energy practices • Energy audits • Training programmes
Agriculture	<ul style="list-style-type: none"> • Subsidies on equipment such as solar pumps • Subsidies on equipment such as energy efficient pumps

Source: Authors' own compilation based on literature

To address the adverse impact and make the energy access cleaner, affordable, and inclusive, governments in all countries have taken various initiatives. The nature and number of these policies being very large, the study has segregated those policies in few mutually exclusive but exhaustive broad categories along with the demand side picture.

TRANSPORT

Most of the G20 countries use policy instruments that involve a form of fiscal incentive such as subsidies, tax rebates, tax benefits, etc., to achieve clean energy transitions in the transport sector. Countries such as China, Germany, India, Italy, Japan have provided subsidies so that consumers can purchase electric vehicles (EVs) for less money. Some countries implement tax rebates and tax benefits that also make the targeted products cheaper than less sustainable products so that they become more affordable. For example, in the Republic of Korea, consumers used to get a maximum of US\$4200 per EV as a direct tax rebate. Further, in many countries of the EU, there exist various direct tax benefits for battery operated EVs as well as plugin hybrid EVs. Another way of providing tax rebate and tax benefits include exemptions from import tax duty and less tax on CNG compared to diesel and petrol, which are in indirect form. For example, Argentina, and Mexico have partial and full exemption on import duty tax for EVs, respectively. Furthermore, Australia, Brazil, China and India have exempted consumption tax on CNG. Sydney, Australia offers cheaper residential parking permits for vehicles that emit less than 112 CO₂ g/km. Another common policy instrument is infrastructure development in which governments invest to develop public transport infrastructure to improve the quality of public transport to help encourage more people to use it. For example, Argentina has a public bicycle system in Buenos Aires, which allows the residents to use it for free for certain purposes. Further, Australia, Germany, China have promoted their passenger rail network, and South Africa, Turkey, UK, Russia, Indonesia, and France have promoted public buses either by aiming to run CNG buses or by providing subsidies on bus fares. Even in the Lille city of France, people under the age of 18 can use public transport for free. Further, the Seoul government, in the Republic of Korea, has launched a night-time bus service with 9 routes so that residents can avail public transport at late night as well. Besides investing on public transport, governments such as Canadian government, Government of Italy, Government of Japan, Government of France, and Government of Argentina have invested in the infrastructure for EV charging stations and CNG refuelling stations to improve the convenience of using EVs and CNG vehicles, as well as make it cheaper to use them as consumers don't waste as much fuel from having to travel to refuel their vehicles.

MSMES

The main trend of the policies used by the G20 to achieve clean energy transitions in the MSMEs sector is that most policies are aimed to make clean energy practices more affordable for MSMEs, as well as through education to ensure that the clean energy practices are implemented correctly and efficiently. Most of the G20 countries have tried to achieve clean energy transitions in MSME sector by improving their access to credit. This is done through providing guarantees, such as India's Credit Guarantee Scheme, or through providing funding for projects that use clean energy practices, as Australia's Clean Energy Finance Corporation provides. Instead of improving access to credits, some G20 members use subsidies to help MSMEs become more energy efficient. For example, in Australia, Canada, Japan, Mexico and South Africa, there exist subsidies for using energy efficient products at their business. Further, USA, UK and EU used to provide business incentives to MSMEs. In addition, some G20 members use training schemes or information support to help MSMEs through policies such as the UK's Business Climate Hub and South Africa's training schemes in the agrifood sector to help train them to use and identify more clean energy practices. Furthermore, Japan uses energy audits to help MSMEs identify ways in which they can improve their energy efficiency.

AGRICULTURE

Although the energy consumption in agriculture and allied sector is minimal as compared to other sectors, energy is required in each step of the agricultural value chain from inputs to end-users. The energy demand will increase with further farm mechanization. Agriculture is a cross-cutting sector where the decision making in each sector—manufacturing industries, transport, residential—matters along with the farming communities. The main use of energy in the agricultural production is for irrigation and on-farm equipment and machineries. Electricity consumption in agricultural production is high for irrigation purposes. One of the solutions for clean energy transition in irrigation is adoption of clean energy supported irrigation system such as solar panel with solar supported pumps.

To promote the adoption of solar irrigation system, countries usually provide subsidies or fundings. For example, in the USA, the United States Department of Agriculture supported a number of solar projects on farm by funding through the Rural Energy for America Programme of renewable energy systems and energy efficiency improvement guaranteed loans and grants and had increased the number of on-farm solar-related projects by fivefold between 2007 and 2009 (Yates, 2012). Similarly, the Government of India has announced a package of subsidies for solar irrigation systems through the specific policy implementation, PM-KUSUM to promote clean energy in agriculture, which is further validated by the government official who participated in our policy dialogue. In Germany, the Departments of Economics and Climate Protection, Environment and Agriculture have agreed to open to 15% of farmlands, specifically swamplands to install solar panels for generation of renewable energy, which can also be utilized for irrigation purposes in agriculture (Bloomberg, 2022).

Another way through which clean energy transitions in agriculture sector has been achieved through market-driven demand. For example, in Brazil, water crisis along with the increasing electricity price have pushed the rural farming communities to move towards solar energy from traditional resources for irrigation. Sometimes, the governments of developed nations provide subsidy supported packages to developing nations to promote solar irrigation systems.

KEY MESSAGES FOR G20



G20 can be seen as a consensus building forum through which normative shifts can be pushed. Although there exist a few demand side policy interventions in G20 countries specific to the three highly GHG emitting sectors, that is, transport, MSMEs, and agriculture, there is a scope to do more on clean energy transitions. The policy brief tries to analyse the trajectory of clean energy transitions in G20, specific to the demand side policy interventions in the sectors of agriculture, MSMEs, and transport. Additionally, it tries to highlight the issue of gender and social inclusion into the clean energy transition dynamics with a special study from media lens.

The G20 Forum can play a normative leadership role to strengthen inclusion issues around energy demand sectors of agriculture, MSMEs, and transport. There is dedicated working group on energy transitions under the Sherpa track. India is due to assume the G20 Presidency from December 1, 2022 where it can assume a normative leadership role in energy demand side management areas when it comes to inclusive energy transitions and strengthen the priority areas as highlighted.

Address the missing dimension of inclusion in demand side clean energy transitions

The dominant narrative on energy transitions is around supply side and demand side dimensions have not received adequate attention in recent times. Even in the narratives around climate change, the Just Transitions narrative has been highjacked by supply side discussions. A holistic approach is needed for inclusiveness in clean energy transitions by considering both supply side and demand side dimensions.

Address reliability issues for promotion of demand measures

Reliable energy supply is essential for inclusive energy transitions. Demand side measures would also need reliability of energy supply to enable lifeline energy consumption for various energy demand uses.

Application and deployment of instruments to factor inclusion

Very few policy instruments are present in energy sector related to demand side inclusion as well as gender inclusion, specific to the three GHG emitting sectors, that is, transport, MSMEs, and agriculture.

Fill missing gender disaggregated data on clean energy transitions

For gender inclusion in energy sector, data on gender at disaggregated level is required which is missing at this point, specifically for the three sectors, that is, transport, MSMEs, and agriculture. This data gap needs

to be given a greater attention for MSMEs and agriculture due to the nature of informality of these sectors.

Strengthen SDG 7 indicator frameworks

G20 can push for global indicator frameworks on SDGs to report and monitor in energy demand side indicators along with gender disaggregated data. Presently, energy-related indicators in SDGs are limited to supply side measures along with reporting on household cooking and lighting indicators.

Build capacity of civil society organizations to raise issues on energy demand

Civil society and media are powerful actors who can enable multistakeholder perspectives and conversations on inclusive energy transitions. While regional and local media can be the barometers on the ground, national media is an efficient enabler in amplifying policies. Together they are a potent tool in furthering perspectives from an inclusion and gender lens within the process of energy transition as the world moves towards cleaner and greener energy transitions.

REFERENCES

- ADB. (2021). *Collective Climate Ambition – A Joint Statement at COP26 by the Multilateral Development Banks*. Retrieved September 26, 2022, from News Releases, Asian Development Bank: <https://www.adb.org/news/collective-climate-ambition-joint-statement-cop26-multilateral-development-banks>
- Bloomberg. (2022). *Germany Opens Farmland to Solar Power to Quadruple Capacity*. Retrieved September 29, 2022, from Asia Edition, Bloomberg: <https://www.bloomberg.com/news/articles/2022-02-10/germany-opens-farmland-to-solar-power-to-quadruple-capacity>
- Cecelski, E. (2005). *Energy, Development and Gender: Global Correlations and Causality. Paper prepared for Department for International Development (DFID), KaR research project R8346, "Gender as a Key Variable in Energy Interventions*. DFID.
- Clancy, J., Winther, T., Matinga, M., & Oparaocha, S. (2011). *Gender Equity in Access to and Benefits from Modern Energy and Improved Energy Technologies. Background Paper for the World Development Report 2012*. The Netherlands: ETC/ENERGIA.
- Dutta, S., Mukherjee, A., Mukherjee, E., & Pal, S. (n.d.). *Digital Financial Inclusion of Women in MSMEs - G20 and India*. Retrieved September 29, 2022, from http://icrier.org/pdf/ES_Digital%20Financial%20Inclusion%20of%20Women%20in%20MSMEs.pdf
- IEA. (2021). *People centred transitions*. International Energy Agency. Paris: International Energy Agency (IEA). Retrieved from <https://www.iea.org/reports/world-energy-outlook-2021/people-centred-transitions>
- IEA. (2022). *Energy Statistics Data Browser*. Paris: International Energy Agency (IEA). Retrieved from <https://www.iea.org/data-and-statistics/data-tools/energy-statistics-data-browser>.
- IFPRI. (2012). *Women's Empowerment in Agriculture Index*. The International Food Policy Research Institute (IFPRI).
- Iqbal, M. (2018, October 2). 'Solar Mamas' power up women's development. The Hindu. Retrieved from <https://www.thehindu.com/specials/women-in-action/solar-mamas-power-up-womens-development/article20016526.ece>.
- Oparaocha, S., & Dutta, S. (2011). Current Opinion in Environmental Sustainability. *Gender and Energy for Sustainable Development* 3(4).
- Robotti, C. (2019). *New Opportunities for Female Entrepreneurs*. Retrieved September 29, 2022, from European Investment Bank: <https://www.eib.org/en/stories/female-entrepreneurship>.
- Singh, S. (2021). *Women Run Fewer Than 13% Of India's Small Businesses. Here's Why*. Retrieved September 29, 2022, from India Speed: <https://www.indiaspend.com/women/women-run-fewer-than-13-of-indias-small-businesses-heres-why-731610#:~:text=Up%20to%2095%25%20of%20all,led%20crisis%2C%20as%20we%20explain>.
- Sun, S. (2021). *Frequency of public transportation used by women India 2018*. Retrieved September 29, 2022, from Statista: <https://www.statista.com/statistics/1047227/india-women-public-transportation-usage-frequency/#:~:text=59%20percentage%20of%20the%20women,used%20the%20public%20transport%20yearly>.
- Yates, Y. (2012). *Eco-friendly Farming: Sowing the Seeds of Renewable Energy*. Retrieved September 29, 2022, from Renewable Energy World: <https://www.renewableenergyworld.com/baseload/eco-friendly-farming-sowing-the-seeds-of-renewable-energy/#gref>.

WORLD SUSTAINABLE DEVELOPMENT SUMMIT

The World Sustainable Development Summit (WSDS) is the annual flagship Track II initiative organized by The Energy and Resources Institute (TERI). Instituted in 2001, the Summit series has a legacy of over two decades for making 'sustainable development' a globally shared goal. The only independently convened international Summit on sustainable development and environment, based in the Global South, WSDS strives to provide long-term solutions for the benefit of global communities by assembling the world's most enlightened leaders and thinkers on a single platform. Over the years, the Summit series has witnessed the participation of 54 Heads of State and Government, 103 Ministers, 13 Nobel Laureates, 1888 Business Leaders, 2745 Speakers, and 38,280 Delegates.

ACT4EARTH

Act4Earth initiative was launched at the valedictory session of WSDS 2022. Building on the discussions of WSDS, this initiative seeks to continuously engage with stakeholders through research and dialogue. Act4Earth initiative has two components: COP Compass and SDG Charter. The COP Compass will seek to inspire and mobilize leadership at all levels for inclusive transitions through ambitious and informed policies and measures which will enable paradigm shifts towards meeting the UNFCCC and Paris goals through mitigation, adaptation and means of implementation. SDG Charter will seek to identify gaps and suggest ways for strengthening and mainstreaming sustainable development in policy agendas for enhanced environmental, social, and economic outcomes.



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