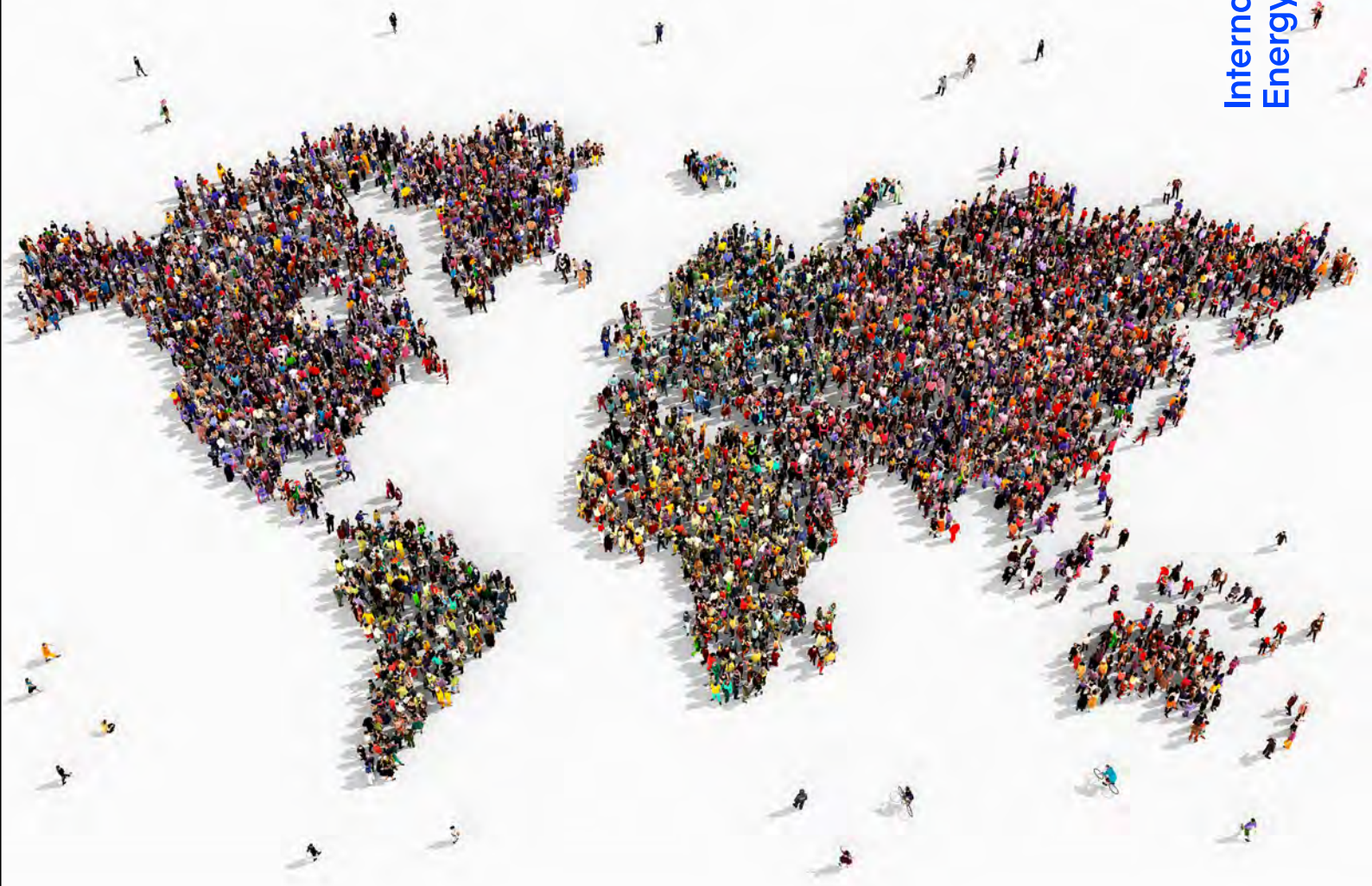
RECOMMENDATIONS OF THE GLOBAL COMMISSION ON PEOPLE-CENTRED CLEAN ENERGY TRANSITIONS



International Energy Agency

Recommendations of the Global Commission on People-Centred Clean Energy Transitions

The Global Commission on People-Centred Clean Energy Transitions believes that all clean energy transitions should be truly people-centred and inclusive, and that this is essential to the success of energy system transformation at the pace and scale required to deliver global ambition for climate change mitigation. Inaction is not an option.

Clean energy transitions will create jobs, enhance our quality of life and ensure a cleaner, healthier environment. A people-centred approach ensures the benefits and costs involved in the transformation of our energy system are distributed fairly and in a way that protects the most vulnerable in society. People-centred clean energy transitions require a focus on skills, decent jobs and worker protection; social and economic development; equality, social inclusion and fairness; and engaging people as active participants.

Our actionable recommendations draw on recent experiences and best practices from around the world. The Commission recognises that local circumstances and clean energy pathways will differ, and therefore these recommendations may be applied in different ways. The Commission intends for these recommendations to influence the clean energy policies and programmes of governments, funders, investors and international organisations globally in order to maximise their benefits to people and ensure the overall success of clean energy transitions on the path to net zero.

Decent jobs and worker protection

1. Design transitions to maximise the creation of decent jobs
2. Develop tailored government support for communities and workers as well as a focus on skills and training
3. Use social dialogue, robust stakeholder engagement and policy co-ordination to deliver better outcomes

Social and economic development

4. Ensure that policies enhance social and economic development, and improve quality of life for all
5. Prioritise universal clean energy access and the elimination of energy poverty
6. Maintain and enhance energy security, affordability and resilience

Equity, social inclusion and fairness

7. Incorporate gender, equality and social inclusion considerations in all policies
8. Ensure fair distribution of clean energy benefits and avoid the risk of disproportionate negative impacts on vulnerable populations
9. Integrate the voices of younger generations in decision making

People as active participants

10. Use insights from behavioural science to design effective behaviour change policies
11. Involve the public through participation and communication
12. Enhance impact through international collaboration and exchange of best practice

Decent jobs and worker protection

1. Design transitions to maximise the creation of decent jobs

Clean energy transitions can significantly improve the livelihoods of people, generating many more jobs than will be lost. However, new jobs will not always be created in the same places, suit the same workers or skillsets, or be of the same quality or remuneration.

Strategic design of clean energy transitions by governments can minimise negative employment disruptions and maximise opportunities for new, good quality jobs across regions by aligning with existing strengths, infrastructure and skillsets, promoting innovation and identifying opportunities in new and emerging areas. Establishing clear and transparent long-term energy transition strategies will help stimulate and de-risk private investment in clean energy sectors to support job creation.

- As part of Denmark's decision to phase out oil and gas production in the North Sea by 2050, the government is planning an aid package to ensure local jobs for the existing skillset of oil and gas workers through carbon capture, utilisation and storage (CCUS) and electrification projects.[1]
- Japan has recently begun to deploy ammonia as a fuel for existing thermal power plants, which can retain existing workforces while creating jobs in new supply chains.
- Canada plans to leverage its existing strengths in the oil and gas sector to develop its hydrogen sector, creating up to 350 000 quality, green jobs over the next three decades.

Governments can also explicitly align industrial and climate policies to promote innovation and job creation in growing areas such as energy services, renewables and smart technology. Addressing issues such as economic diversification and development will be particularly important for fossil fuel producing and exporting countries.

- India's Make in India industrialisation strategy aims to attract companies to produce solar PV, lithium batteries, solar charging infrastructure and other advanced technologies in India.
- Envision has been working with the city of Ordos in China's coal-producing province of Inner Mongolia to repurpose its economy by building renewable and digital technology parks as an alternative to coal production.
- The European Green Deal is a comprehensive growth strategy, covering all sectors of the economy, designed to maximise the job potential of the green transition.
- The United States, among others, is promoting the development of CCUS through tax credits as a decarbonisation pathway for its fossil fuel dependent industries to help preserve jobs in these sectors.

It is equally important to ensure that new jobs created by energy transitions are of good quality and uphold the highest labour standards. There are well-developed principles for supporting those affected by employment changes in clean energy transitions, most notably the International Labour Organisation's (ILO's) 2015 Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for All, which provide a policy framework and specific recommendations to ensure that energy transition policies are socially inclusive and support decent work.

Charting pathways for net-zero workforces, including quantification of job potentials, can help governments understand future job opportunities and plan for education and skills needs.

- Recent IEA analysis of job gains and losses under a net zero pathway will help governments understand and prepare for employment shifts brought about by energy transitions. It illustrates that strong investment in clean energy will overall boost GDP growth and create many millions of jobs, although care must be taken regarding the distribution of gains and losses.
- The UK has set up a Green Jobs Taskforce to gather evidence on skills needed for the transition to net zero.
- A study of India's options to move away from coal while preserving employment and economic prospects for its coal-reliant communities highlights the importance of modelling employment and distributional impacts from coal closures.

[1] More detailed descriptions of all case studies can be found on the IEA website

2. Develop tailored government support for communities and workers as well as a focus on skills and training

Experience shows that mitigating adverse economic effects entails long-term programmes that focus on workers and communities. Energy industries and their supply chains are often geographically concentrated and can represent the social, economic and cultural underpinning of entire communities. A targeted and local approach is needed to help communities adjust to and benefit from the transition.

- In line with Paris Agreement targets and coal phase-out plans, several countries, including Spain, Germany and Canada, have enacted just transition programmes that promote employment opportunities and other community support measures in impacted mining regions. For example, Spain's Just Transition Agreements offer support to local industry, retraining for green jobs, and environmental restoration.
- The UK published the North Sea Transition Deal in March 2021 that includes a joint commitment from the government and oil and gas companies to invest up to GBP 16 billion by 2030 to support local economic diversification and jobs, including in areas such as upstream decarbonisation, CCUS and hydrogen, as well as skills training.
- The EU Just Transition Fund was created as a financial instrument to help member governments address asymmetric job shifts, particularly in coal mining regions, through long-term support mechanisms.
- Members of the US Congress are trying to revive an advanced energy manufacturing tax credit with half of the money set aside for eligible entities to locate advanced energy manufacturing facilities in coal communities to bring jobs with similar skillsets to these areas.

Such supports require significant investments, which are not equally affordable to all governments, and may require financial assistance.

In order to mitigate negative impacts on local jobs, skills retraining and upskilling should be prioritised, with the requisite investment and engagement with educational institutions. More granular skills data will be needed to match workers with jobs in the new economy. Education for younger people in clean energy fields should also receive stronger focus, to train the workforce of the future.

- France launched a EUR 50 million fund to retrain foundry workers making cast-metal auto parts as its car industry shifts toward production of electric vehicles.
- Digital upskilling, in particular, will be important for clean energy jobs of the future, as Italy has demonstrated with the launch of a national coalition for digital skills and jobs in 2020 to roll out digital training programmes to close skills gaps.
- Canada has committed CAD 35 million to support skills development and economic diversification in coal regions impacted by the energy transition. The government is also undertaking training and re-tooling across the country to build a skilled workforce to support anticipated energy efficiency sector growth.
- The European Master in Renewable Energy was developed by the European Renewable Energy Research Centres and a consortium of universities to train people for skills in renewable energy fields.

3. Use social dialogue, robust stakeholder engagement and policy co-ordination to deliver better outcomes

Social dialogue with unions, employers and government as well as robust stakeholder engagement – such as with communities, international organisations, academia and civil society (including youth) – builds public support, incorporates local perspectives, invites innovative ideas from diverse stakeholders, and helps create plans that are sustainable, culturally appropriate and feasible to implement. Social dialogue and stakeholder engagement should include clear communication on the necessity of rapid transitions. Failure to do so means workers, communities and industries risk becoming stranded in increasingly uncompetitive industries.

- South Africa's statutory social dialogue body, NEDLAC, brings together civil society along with traditional social partners. It has negotiated a social compact on the transition of the country's utility, Eskom.
- The German government established a multi-stakeholder Commission on Growth, Structural Change and Employment, which made recommendations on the timing and pace of the coal phase-out as well as transitional assistance to affected communities. The recommendations are now embodied in legislation as well as social dialogue between employers and unions.
- As part of Spain's recovery, transformation and resilience plan, the government has promoted a high-level energy transition forum to discuss progress on the plan's green components with business, civil society and academia.
- The EU initiative for coal regions in transition established a European-wide, multi-stakeholder forum to discuss common issues and possible solutions for the phase-out of coal in line with EU energy and climate objectives. The EU also has sectoral social dialogue for the electricity sector, under which union federations and the employer organisation EURELECTRIC have negotiated agreements on skills, just transition and other topics.

Social dialogue and stakeholder engagement on a regional and local basis are equally important to ensure that local partners have a seat at the table to decide on plans for their future redevelopment.

- In line with the government's social dialogue with unions and coal companies and subsequent agreement to phase out of coal mining by 2049, Poland is undertaking intensive engagement with coal regions toward the creation of regional plans to direct investment in coal communities to support the transition.
- In 2018, the Canadian government established the federal Task Force on Just Transition for Canadian Coal Power Workers and Communities to undertake consultations with coal communities in Alberta, Saskatchewan, Nova Scotia and New Brunswick, and to make recommendations on a just transition to the federal government.

Policy co-ordination across the government is also important. Addressing the employment and social impacts of energy transition polices requires stronger co-ordination across government agencies, beyond just energy or climate ministries, including with finance, trade, transport, labour, agriculture and education ministries.

- For example, South Africa's Presidential Climate Change Coordinating Commission brings together government, industry and civil society to co-ordinate government action and develop a framework on the just transition.
- Panama established an Energy Transition Council to provide advice, consultation and accountability for the Strategic Guidelines of Panama´s Energy Transition Agenda.
- The US administration set up an Interagency Working Group on Coal and Power Plant Communities, bringing together leaders of different agencies to find a collaborative, all-of-government approach to identify existing resources and new opportunities to assist communities that have been impacted by the energy transition.
- Senegal's Agency for the Economy and Energy Management (AEME) has signed agreements with the Ministry of Trade to coordinate actions on energy efficiency and the energy transition.

Social and economic development

4. Ensure that policies enhance social and economic development, and improve quality of life for all

Clean energy transitions will provide an important opportunity to advance economic and social development, not just through job creation, but also by providing the clean, affordable energy required to allow environmental protection, economic development and growth, and a better quality of life.

- In India, Community Cooling Hubs are helping farming communities by aggregating cooling demand and enhancing efficiency. Such approaches can combine food cooling supply chains with other services, such as community health services and emergency services, to better meet community needs.
- Zimbabwe has greatly improved affordability and reliability of energy for healthcare facilities in poor, remote and rural areas by installing solar panels as part of the Solar for Health Initiative. Kenya has achieved similar results through its Off-Grid Solar Access project.
- Building off the successful deployment of off-grid solar installations in remote areas, the complementary deployment of highly energy-efficient equipment in off-grid health clinics has been seen to successfully expand delivery of health services.
- SEforALL's Universal Energy Facility (UEF) is promoting results-based financing for off-grid electricity access to expand services while reducing emissions from existing energy sources.
- COVID-19 recovery programmes offer an opportunity to advance both clean energy and development goals, especially through the financing of infrastructure. However, IEA analysis shows that globally the proportion of stimulus funding dedicated to clean energy is currently only 2%.

Renewable energy infrastructure can also serve as a major driver for economic development in regions rich in renewable resources, which are often in rural areas with less industrial activity. Several governments have designated such regions as priority areas for clean energy investments. For example, renewable energy zones in countries such as Australia and Turkey have been major drivers of increased investment and local economic development.

It is equally important to ensure that clean energy transitions provide opportunities for local capacity building that can support job creation and economic development. International co-operation on clean energy technology capacity building will also be important in this regard.

- The REnewAfrica Initiative assists local governments in developing a more investment-friendly environment through de-risking instruments and capacity building.
- The Enel Foundation has developed the Open Africa Power initiative, an educational partnership involving academic institutions in Italy and Africa, to build local capacity on sustainable electricity topics.

Clean energy policies can also improve quality of life in many ways, such as through less polluted, more liveable cities, clean cooking and a healthier environment. For example, China's programme to provide clean stoves for 40 million households by 2020 has cut emissions, improved air quality, and improved the health and economic well-being of its citizens.

Clean energy, in combination with digital technologies, can greatly increase daily comfort and convenience of households while also lowering energy bills. Already, the use of smart home systems and devices is on the rise across the world. For instance, it is estimated that smart homes in China alone will grow from around 3.2 million in 2016 to 29.5 million in 2021. Moreover, the rise of mobile apps to easily track and manage energy consumption has helped consumers lower energy bills in a convenient way. Governments can support such innovation, as the US Department of Energy did when it launched the "Apps for Energy" competition in 2012, which financed the development of mobile apps that help consumers use less energy and save money. Such initiatives lead to widespread positive experiences associated with clean energy.

5. Prioritise universal clean energy access and the elimination of energy poverty

As part of the promotion of basic human rights, successful clean energy transitions should ensure universal energy access and the eradication of energy poverty, improving the affordability of energy for all. The IEA estimates that 770 million people are still without electricity access and 2.6 billion without clean cooking access, and that progress worsened during the pandemic. Countries without universal energy access today will follow specific clean energy transition pathways that prioritise access. Energy efficiency will play an important role in supporting access while lowering costs and emissions.

Good alignment between clean energy and access policies can enhance the success of both, and a number of programmes have successfully reduced energy bills for low-income households while also expanding access to clean energy.

- Morocco achieved universal electrification through a successful rural electrification plan that included reaching the remaining unserved 10% of the population in remote areas, often the most difficult to serve, through solar home systems.
- Kenya too has seen rapid growth in electricity access, from 20% in 2013 to nearly 85% in 2019, due to both increased grid connections and expanded home solar systems.
- India's UJALA campaign greatly expanded the penetration of high-efficiency lighting to low-income households in an affordable way through an innovative repayment system.
- The European Commission's Renovation Wave Strategy aims to reduce energy poverty by improving the energy performance of buildings.
- Spain's "DUS 5,000" scheme offers aid for small municipalities (less than 5 000 inhabitants) to improve energy efficiency or promote sustainable mobility in rural areas. It also created the "PREE 5,000" aid scheme for energy efficiency rehabilitations of buildings in rural areas.
- Austria has increased information and financial support for households to switch from fossil-fuel-based heating to greener options, focusing on lower income groups. Similarly, Poland's Clean Air programme targets low-emissions heating retrofits for households impacted by energy poverty.

Beyond grid access, quality and reliability of energy supplies are equally important considerations. Energy access strategies often involve "leapfrogging" to off-grid solutions driven by efficiency and renewables, and may entail new business models that allow for greater access at lower costs.

- Colombia has introduced a new mechanism for the Network Operators of the National Interconnected System (SIN) to bring power service through off-grid and micro-grid solutions to around 338 000 homes that are not connected to the main grid.
- Expanding access can also be supported by reducing taxes. Senegal, for example, exempts renewable energy equipment from its VAT, a policy designed to increase electrification and penetration of renewables.
- Canada's Clean Energy for Rural and Remote Communities (CERRC) Program supports the deployment and demonstration of renewables solutions and strengthens local capacity to reduce diesel reliance in rural and remote communities.
- Mexico's government contributes public funds toward the installation of solar panels in rural areas to expand access and reduce energy poverty.
- Brazil has used biomass gasification to expand electricity access in rural areas, while micro hydropower plants have been developed to expand access in Indonesia.

Energy efficiency measures are important to achieving these objectives. Many countries offer support to low-income households for energy efficiency upgrades, including France, the United States and New Zealand. Notably, the International Center for Appropriate and Sustainable Technology, with the support of the US Department of Energy, has been undertaking deep retrofit projects in the US small commercial apartment property market, which has been an especially challenging market for energy efficiency improvements. To ensure affordability for first-time energy users, it is critical to include energy efficiency measures in access and electrification strategies.

6. Maintain and enhance energy security, affordability and resilience

Clean energy transitions should retain a focus on energy security. A new IEA report for the G20 highlights emerging energy security considerations in the context of clean energy transitions, urging governments to boost energy system resilience as they pursue their clean energy strategies.

For many countries, a move from imported fossil fuels to local clean sources can enhance broader economic resilience. It can also generate economic opportunities for countries without fossil fuel resources to create industries around their clean energy resources.

Energy efficiency measures bolster energy security by reducing fossil fuel imports and exposure to global supply disruptions.

- Recent IEA analysis highlights how energy efficiency measures across the world have reduced fossil fuel import dependency and improved energy security. It finds that efficiency gains in major economies avoided the need for over 20% more fossil fuel imports in 2017.
- Japan's long history of efficiency policies to reduce oil and gas import dependence brought oil savings of 20% of its imports in 2016 and improved energy security.

Lower energy bills from energy efficiency measures also make consumers less vulnerable to global price pressures. For instance, IEA analysis estimates that US energy efficiency savings and labelling programmes have cut average household fuel bills by USD 320 annually.

Active promotion of renewable energies also pays dividends in terms of reducing energy imports and improving energy security.

- Turkey's renewable power buildout, including local manufacturing capacity, has helped bring down the country's fuel import bill, notably by reducing gas imports.
- Brazil's ethanol production programme has reduced its dependence on fossil fuel imports, improving energy security and creating new industries and jobs in the process.

Emissions abatement technologies can also help eliminate emissions from existing fossil fuel plants that are maintained to provide reliability and resilience services, such as the Boundary Dam CCUS plant in Canada.

Grids that are dominated by variable renewables sources will need to be supported by storage, flexibility and digital solutions, as well as modern, resilient grids. China, the EU and the United States have announced large investments in grid upgrades and expansions. Moreover, Italy and the IEA have launched the 3DEN initiative to support power system modernisation and effective utilisation of distributed resources for greater efficiency and reliability. As climate change drives more weather-related disruptions to energy infrastructure, enhancing the resilience of energy systems will be all the more important.

An important dimension of people's experience of clean energy transitions is whether they are perceived to affect energy security and reliability. If, for example, electricity blackouts – which can have many varied causes – are mistakenly associated with clean energy policies, it can weaken public support for such policies. Communication relating to such issues merits careful management; unbiased assessments with reliable data can support this process.

As clean energy transitions drive increased demand for many critical minerals, countries with such resources will see opportunities to shift economic activity and jobs from traditional mining activities to this sector. Critical minerals development plans should guarantee that minerals are responsibly produced, employing all the requisite environmental and social protections. Countries such as Australia, Canada and the United States are already developing critical minerals action plans.

The Italian G20 presidency of 2021 placed a complementary concept of energy security and co-operation at the centre of clean energy transitions by prioritising energy efficiency and supporting development of all clean options, including consideration of just and inclusive transitions.

Equality, social inclusion and fairness

7. Incorporate gender, equality and social inclusion considerations in all policies

Equality and inclusion should be built into clean energy policy design to prevent any risk of disproportionate or unintended consequences for certain segments of society, avoid exacerbating existing inequalities and support the principles of human rights while leaving no one behind and providing all people with an opportunity to contribute to clean energy transitions. In particular, the needs and priorities of historically marginalised groups should be carefully considered and incorporated through broad consultations with representatives of relevant constituencies.

- The Clean Energy Ministerial (CEM)'s Clean Energy Education and Empowerment initiative, chaired by Canada, is a joint effort under the CEM and the IEA Technology Collaboration Programme to advance gender equality in the energy sector globally.
- Chile seeks to boost women's participation in clean energy through its 'Energia + Mujer´ programme, addressing key barriers women face in pursuing a career in the sector.
- Denmark's Inge Lehmann Research Program offers grants to female researchers with the objective of improving the gender balance in STEM fields, including energy and climate.
- The EU is launching the 'Equality platform for the energy sector', open to all stakeholders in the energy sector to highlight their actions promoting equality in the workplace.

In emerging economies, women are often disproportionately affected by a lack of energy access or reliance on more polluting forms of energy. More consideration should be given to programmes that directly impact women's health and social and economic well-being, including the positive impact of clean cooking. Clean cooking initiatives such as those advanced by the Clean Cooking Alliance should be supported, especially as they relate to the lives of rural women. Indonesia's Kopernik "Wonder Women" programme links technologies such as biomass stoves, solar lights and water filters to recruited and trained women micro-entrepreneurs. A shift toward more modern fuels and appliances will also have benefits by freeing up women's and girls' capacity to pursue education, entrepreneurship or enter the workforce.

Local, bottom-up education, training and empowerment are also important factors in providing the skills necessary for jobs in the clean energy economy, as evidenced by the Girls4Rurals initiative, which provides training for a network of young girls to work as distributors of solar PV systems. Similarly, the Indian social service centre, SevaKendra, has a project for "gender mainstreaming through solar technology" to provide rural women training in assembling and selling solar lamps.

Without a specific focus on equality, policies can risk bringing disadvantage, or failing to bring advantage, to more marginalised sections of society. They can also be perceived as unfair or as benefitting only richer segments of society. Design features of clean energy programmes can support progressive outcomes as in South Africa's Renewable Energy Independent Power Producer Procurement Programme, which attempts to enhance social inclusion and distributional impacts by including criteria such as local ownership, socio-economic development, and enterprise development.

8. Ensure fair distribution of clean energy benefits and avoid the risk of disproportionate negative impacts on vulnerable populations

All policies, particularly pricing and fiscal instruments, have distributional impacts and require careful design to prevent negative effects or perceived unfairness.

The perceived fairness and public acceptability of carbon pricing is likely to be higher when corresponding tax revenues are channelled toward mitigating the net impact on household pocketbooks.

- Switzerland recycles revenues from its carbon tax by reimbursing two-thirds of the proceeds to all inhabitants as reductions in health insurance charges, which increases distributional equity and helps foster support for the policy. Nonetheless, a recent effort to increase the carbon price was narrowly rejected in a June 2021 referendum.
- Canada returns around 90% of carbon pricing proceeds collected in some provinces back to households in the form of a rebate, offsetting the gross impact on household finances.
- The European Commission has proposed a Social Climate Fund to help reduce the financial impacts on vulnerable households and transport users from the planned emissions trading system on the transport and buildings sectors by investing in energy efficiency and, where relevant, direct income support.

Reform of inefficient fossil fuel subsidies can be undertaken in ways that protect vulnerable social groups while removing perverse incentives for wasteful consumption of polluting fuels.

- As part of fossil fuel subsidy reform in 2016, the Indonesian government developed a new, better-targeted LPG subsidy scheme, using a smart-card system, which merged the energy subsidy with the social protection system to better target subsidies for poor households.
- Effective communication was instrumental to success in Peru's implementation of its Energy Fund for Social Inclusion, including targeting the most vulnerable population segments.
- Oman is combining the phase-out of subsidies with a new national support system to help low-income consumers.

Alongside costs, it is also important to ensure that benefits and incentives are fairly distributed. For example, the OECD has pointed out that home renters will not benefit from subsidies for improving energy efficiency available to homeowners.

Transparent and straightforward communication can aid acceptance and build trust in policies. For example, as part of Indonesia's LPG subsidy reform, the government developed a strategic communication campaign, emphasising that the reforms were not about eliminating every form of support but about switching subsidies from products to households. And before making any adjustments to its carbon pricing mechanism, the government of Sweden identifies groups that will be most impacted and targets communication of the policy changes to their concerns.

Several projects have also demonstrated success in aligning access goals with local opportunities for remote and marginalised groups. In Guyana, the Hinterland Renewable Energy Project, part of the Low Carbon Development Strategy, supports the installation of solar home systems for rural households without access to the national grid, and includes training programmes targeted at Indigenous communities for installation and maintenance of the systems. Similarly in Brazil, RevoluSolar, a community-based organisation, installs solar panels in favelas and trains residents as electricians or entrepreneurs.

9. Integrate the voices of younger generations in decision making

Younger generations will inherit the consequences of clean energy transition decisions taken today, and represent a vital voice in the clean energy debate. Many parts of the world are experiencing stronger levels of youth activism, and experimenting with new ways to involve young voices in agenda setting and decision making.

- The SDG7 Youth Constituency provides a platform for youth to participate in the delivery of Sustainable Development Goal 7, and to channel their voices into key multilateral decision making forums.
- Alongside the Pre-COP ministerial, Italy organised the "Youth4Climate: Driving Ambition" summit, where young people from across the world gathered in Milan to discuss topics and elaborate proposals, which for the first time are officially contributing to COP26 negotiations.
- The UN Secretary General has established a Youth Advisory Group on Climate Change, to ensure active participation in the debate.
- The Global Youth Energy Outlook is the first youth-led research project of its kind to engage over 30 000 young people to share their perspectives on the energy transition.
- In Denmark, the Youth Climate Council works to encourage Danish youth to take part in the climate debate and make recommendations to the minister.

Skills training, capacity building and tailored education programmes to help young people prepare for jobs in clean energy sectors can greatly expand opportunities.

- The 'Youth for a Just Transition toolkit' published by the European Commission offers detailed recommendations to encourage participation by youth in regions targeted by the European Just Transition Fund.
- Panama has launched an SDG7 academy for young people in energy to bolster awareness and develop skills.
- In Belgium, the SYSTEMIC programme aims to increase interest among young Europeans in science, technology, engineering and mathematics fields.
- Youth also represent the emerging generation of innovators and entrepreneurs that will provide the technical and social solutions of the future.
- The Youth Sustainable Energy Hub Progress Report highlights how youth projects contribute to promoting sustainable energy and other aspects of sustainable development.
- The Belgian transmission grid operator, Elia, organised a hackathon in October 2021 to tackle a number of challenges for energy transitions, including new market design, with the aim of increasing participation from students and young innovators.
- South Africa has launched the 'Drivers for Youth Change' pilot initiative to fund and provide technical support to select youth-led climate projects.

While young people work to actively promote clean energy transitions, there is a need for expanding clean energy components in basic educational programmes as well as for greater support of youth-led initiatives in terms of funding, enabling policies and data provision. The Canada-based global initiative, Student Energy, for example, is launching the Solutions Movement to mobilise USD 150 million by 2030 to support 10 000 youth-led clean energy projects globally.

Energy transitions should also ensure that young people in less developed countries do not suffer from reduced productivity and opportunities due to lack of access to energy. As such, clean energy access policies must also include a particular focus on youth. For example, Nigeria has made progress installing off-grid solar solutions at schools to expand reliable energy access to support children's education. Meanwhile, the Lighting Africa Project in Burkina Faso installs solar lamps in school libraries.

People as active participants

10. Involve the public through participation and communication

Gaining broad public support at the beginning of policy design will play a crucial role in accelerating the successful implementation of clean energy policies, both in terms of overall political support and to build local acceptance of new developments or infrastructure. Citizens and communities should be active participants as decision makers, innovators and beneficiaries of clean energy actions.

A number of countries have used citizens' assemblies to engage the public in discussion and decision making on climate action and clean energy transitions:

- In 2017, the Citizens' Assembly of Ireland worked to make recommendations on how the country should enhance climate action. Denmark established a similar Citizens' Assembly in 2020, while Austria is preparing its first Citizens' Climate Assembly to propose climate measures to the government.
- Canada's Generation Energy engaged over 380 000 Canadians in a national conversation about Canada's energy future, while France organised the Citizen's Convention on Climate, giving citizens a mandate to recommend measures to meet 2030 emissions targets.
- The Vatican is seeking community engagement on environmental protection and social justice through the Laudato Si' Action Platform, which will provide guidance and resources to individuals and communities to take environmental action.

These processes, where recommendations are seen to be given meaningful consideration, can build trust and support.

Similarly, clear communication on the benefits and process of clean energy transitions can greatly bolster citizen engagement and generate momentum for change. For example, to achieve its Kyoto Protocol commitments, Japan launched the national "Team Minus 6%" campaign to encourage six emissions-reducing lifestyle changes among its citizenry. India too has used public information campaigns to drive behavioural change under the #GiveItUp campaign, which encouraged voluntary surrender of an LPG subsidy for those who could afford it, while the #ILEDTHEWAY campaign popularised the use of LED lighting. Many energy efficiency measures deliver tangible benefits, such as more comfortable homes or more pleasant, healthier environments in schools and workplaces. Such experience can build positive associations with clean energy measures.

Communities also have an important role to play in clean energy transitions. Active engagement by citizens in renewable energy projects, for example, can pool local resources and bolster local acceptance, access to capital, consumer choice and local economic opportunities. Community ownership models help in this regard, as demonstrated by Denmark's and Germany's renewable energy cooperatives, and similar approaches in several other European countries, promoted by the European Union under the new concept of energy communities.

- Several other countries have promoted community models, including Spain and the United States, or Belgium's CEDAN initiative, a citizen cooperative for electric car sharing. Belgium is also promoting citizen participation by means of renewable energy communities in offshore wind projects.
- Italy has introduced a renewable energy community initiative, where people can collaborate to locally produce renewable electricity, supported by public funding. Similarly, Austria's Renewable Deployment Act includes measures to ensure citizens' participation, such as through energy communities.
- Poland's "My Electricity" programme provides funds to support the generation and consumption of electricity from micro-PV installations, which has led to a PV boom.
- The UNIDO-Global Environment Facility's biomass gasification project built capacity for sustainable, community-driven renewable energy management in rural Thailand.

Community acceptance of clean energy infrastructure is also essential to successful transitions. EirGrid, the state-owned transmission operator in Ireland, recently undertook an intensive process of community consultations, with an emphasis on youth participation, to build understanding of the need for new infrastructure and to better understand community concerns. Governments and organisations can also lead by example, as evidenced by the Vatican's installation of a large solar PV system close to the historic and symbolic Saint Peter's Basilica.

11. Use insights from behavioural science to design effective behaviour change policies

Many aspects of clean energy transitions hinge on behaviour – how people use energy in their daily lives, what appliances they choose to purchase, and how businesses choose to invest and employees choose to act. Evidence shows that well-designed policies, informed by behavioural science, can unlock huge potential for responsible energy consumption. Many campaigns successfully focus on environmental protection and saving money, but motivation for behavioural change can also stem from ethics and values, including religious principles and teachings, or philosophy.

Raising consumer awareness by providing easily accessible and easily understandable data on consumption is an important first step to consumer-driven action. For example, Opower launched a pilot programme with utilities in New Delhi, India to provide home energy reports to residential consumers with peer-to-peer comparisons, which proved successful not only in achieving energy savings but also in building trust between households and power providers. Countries such as Japan, Malaysia, Norway and the United States have also shown positive results on energy savings from home energy reports that compare consumption with similar households in a neighbourhood.

Behavioural sciences can also improve the impact of information provided through campaigns and product labels. To this end, EU energy labels have recently been redesigned to improve clarity and impact based on behavioural research. Public platforms can also encourage citizens to change their behaviour, such as the Count Us In campaign under the European Climate Pact. Elsewhere, Senegal's AEME has an initiative in coordination with national school administrations to educate students on best practices for responsible energy consumption.

Feedback mechanisms have also proven effective. Highlighting the financial savings from energy efficiency changes in a clear and simple manner has shown results, as evidenced by the new smartphone app from India's Bureau of Energy Efficiency, which estimates the monetary savings from an efficient appliance to help consumers understand energy labels and the benefits of efficiency.

Strong policy support to make benefits visible to consumers and businesses is necessary to address existing inertia and force of habit, and help them adopt more climate-positive choices.

- Norway has successfully promoted uptake of electric vehicles through price signals and other benefits, such as free parking, to ensure consumer support is sustained.
- Belgium's company car system has been reformed to ensure that from 2026 onwards only zero emissions vehicles will benefit from the fiscal benefits offered to company cars.
- Spain's NECP includes a measure to establish low-emissions zones in its cities to encourage affordable modal shifts toward bicycles, walking and public transport by working with city governments to transform urban infrastructure.
- The UK has introduced special licence plates for EVs to promote a shift in social norms toward driving electric models.
- In Jakarta, the installation of digital payment systems and real-time transit information at train and bus stops has been successful in reducing negative perceptions of wait times and increasing ridership.

12. Enhance impact through international collaboration and exchange of best practice

Many innovative approaches to people-centred energy transitions policies offer valuable insights to others. Some countries will face greater challenges pursuing clean energy transitions, pointing to the value of best practice exchange, collaboration and co-operation. The IEA is supporting the aims of the Global Commission in developing a data bank of global best practices in the design and implementation of people-centred clean energy policies.

- A new initiative of the CEM, "Empowering People: Advancing Skills and Inclusivity for Clean Energy Transitions", seeks to highlight critical socio-economic elements of the energy transition, in particular as it relates to empowering people and promoting just and equitable transitions, by advancing skills, inclusivity and workforce development.
- A number of IEA Technology Collaboration Programmes foster cooperation on social dimensions of clean energy, including the Users TCP, which insights on the design, social acceptance and usability of clean energy technologies, and the Wind TCP, which examines social acceptance of renewables infrastructure.
- The UK COP26 Energy Transition Council aims to support people and communities around the world heavily reliant on the coal economy to make a secure and just transition, including building engagement through a new Just Transition Declaration.
- The EU has set up an initiative for coal regions in transition in the Western Balkans and Ukraine as well as an exchange programme with EU coal regions to ensure that lessons learned from the EU experience are shared across Europe.

As governments around the world enact policies to support energy transitions, they should ensure even distribution of benefits to countries and people around the world. The concentration of clean technology innovation, production and supply chains in a few regions will exacerbate income inequality and divide economic opportunities and job creation, eroding support for the energy transition. A collaborative approach among countries can help mitigate these impacts.

Increased and new types of co-operation between international organisations with traditional competencies in energy data analysis, such as the IEA, and organisations that focus on social and economic development issues, such as the ILO, will also help disseminate better outcomes and greater transparency on people-centred clean energy transitions globally. It is also crucial to measure progress of the transition using standard indicators that capture social, environmental and economic dimensions.

The sharing of experiences and best practices extends beyond international organisations and national governments to sub-national governments, businesses, communities and individuals. For example, several international city networks bring together urban practitioners to share their experiences and lessons learned in combining clean energy transition and social goals, such as the Global Covenant for Mayors on Climate and Energy, the C40 Cities Climate Leadership Group and the Carbon Neutral Cities Alliance.

The question of financing people-centred clean energy transitions requires particular consideration. Not all countries will have the same financial means and technical capacity to deliver people-centred energy system transformations at the same scales and timeframes. As such, there will be an important role for international financing mechanisms, including through international development banks, to help developing countries carry out their transitions. For example, the EBRD launched a just transition initiative to ensure widespread benefits from the clean energy transition are shared by vulnerable countries and regions.

The Global Commission urges the IEA to expand its work on the people-centred issues of clean energy transitions, including close collaboration with other key bodies such as the ILO, and through the development of new ways to facilitate collaboration and analysis to support governments as they undertake transitions tailored to their own circumstances.

Commission members

The Global Commission for the People-Centred Clean Energy Transitions was convened by the Executive Director of the IEA, Dr Fatih Birol, in January 2021.

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