

POLICY BRIEF

No. 35, 2022

Supporting Vulnerable Populations in the Transition to Net Zero Emissions: Priorities for Developed Countries

Akio Takemoto, Apolline Cros, Masachika Suzuki,
and Upalat Korwatanasakul

Highlights

Meeting the 1.5°C goal of the Paris Agreement on climate change requires all countries to accelerate action for achieving net zero emissions by 2050. The net zero transition must ensure that all users can access clean energy and energy efficiency solutions. Among developed nations, national commitments toward carbon neutrality offer different levels of support for vulnerable groups. Governments should play a key role in realising universal access to decarbonised technologies and practices by identifying vulnerable energy users, improving governance mechanisms, and enhancing support measures for vulnerable populations.

Recommendations:

- Identify vulnerable energy users through data collection and analysis of socio-economic challenges for net zero emissions.
- Improve governance mechanisms to harmonise climate change policies with socio-economic policies.
- Enhance support measures for vulnerable energy users to ensure equal access to clean energy through evidence-based information.

Social Dimensions of Clean Energy Measures

As an outcome of the 2021 UN Climate Change Conference in Glasgow (UNFCCC COP26), Parties agreed to accelerate climate action along the pathway toward net zero greenhouse gas emissions and climate-resilient development under the Paris Agreement to limit the global average temperature increase to 1.5°C. Over 90% of global GDP is covered under net zero commitments, and 153 countries have set new emissions reduction targets for 2030 as part of their Nationally Determined Contributions (NDCs; United Kingdom 2022).

Meeting net zero emissions targets requires massive investments in clean energy, energy efficiency solutions, and deployment and installed capacity. According to the International Energy Agency (IEA 2021), the net zero emissions scenario requires clean energy investments of USD 4 trillion globally by 2030, utilising both public and private finance. Such a rapid energy transition entails social transformation, impacting efforts to achieve just and inclusive societies, as mentioned in the 2030 Agenda for Sustainable Development (UN 2015). For example, the Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5°C (2018) identified potential problems emerging from policy contradictions (e.g., higher electricity prices) and unintended outcomes

(e.g., job losses and poverty due to the redistribution of income generated by carbon taxes), which could exacerbate energy poverty.

Inclusive Net Zero Policies for Vulnerable Energy Users

The IPCC (2018, 469) indicates clear differences between high-income and developing countries in their potential for pursuing the 1.5°C goal. This highlights the need for inclusive climate mitigation policies tailored to the specific needs of developed and developing countries. All countries need to understand how disparities in social conditions, such as income and educational attainment, will affect the transition to net zero and its impact on different populations, particularly vulnerable energy users.

This policy brief explores how developed countries can address the needs of vulnerable groups in their climate mitigation actions, focusing on clean energy policies. It is based on an analysis of the 7th National Communications (7NCs) submitted by the Annex II parties to the United Nations Framework Convention on Climate Change (UNFCCC; see Notes), comprising 23 developed countries and the European Union (EU).

Vulnerable Energy Users

Vulnerable energy users — individuals or groups of people at high risk of energy poverty — have difficulty accessing clean energy and energy efficiency solutions, and support measures are needed for decarbonising their activities. Vulnerable energy users identified in the 7NCs include low-income households, remote populations, indigenous communities, those with high health needs and elderly

All countries need to understand how disparities in social conditions will affect the transition to net zero and its impact on different populations, particularly vulnerable energy users.

people, and small and medium-sized enterprises (SMEs). SMEs are considered vulnerable energy users because they encounter financial barriers to investing in clean energy and energy efficiency solutions (Fatima et al. 2021) while being important stakeholders in local economies. In this analysis, small-scale farmers, women, and sexual minorities are not included in the category of vulnerable energy users since

the 7NCs make no distinction between small-scale farmers and larger-scale ones, and no support measures for women and sexual minorities were found.

Existing Policies

Analysis shows that 17 out of 23 countries (74%) support at least one category of vulnerable energy users in implementing climate mitigation measures. Eleven countries (48%) support low-income households in implementing climate mitigation actions, and ten countries (43%) support SMEs. Remote populations, indigenous communities, and those with high health needs and elderly people receive less attention from the Annex II parties — only three to four countries (13%–17%) provide support for them. There are no specific domestic climate mitigation measures addressing gender inequality in the 7NCs analysed.

Most countries offer financial aid, such as grants, loans, or tax incentives, which specifically aims to promote energy transition. For instance, under the just net zero transition scheme, Luxembourg provides financial support for people with very low incomes, and offers green loans to SMEs that invest in energy-efficient and less polluting manufacturing processes and tools. Spain gives financial assistance to households in poor areas to help with energy-efficient building renovations. Low-income households are most commonly targeted, with 11 countries (48%) offering financial support. SMEs are supported by eight countries (35%), remote populations by four countries (17%), indigenous populations by three countries (13%), and those with high health needs and the elderly by two countries (9%). Non-financial measures are also employed, with seven countries (30%) providing advice or training to SMEs. Two countries (9%) support indigenous communities by creating

jobs within the community or by fostering local action, and three countries (13%) provide information support to vulnerable energy users.

This analysis shows that most developed countries provide support measures for at least one category of vulnerable

energy users. However, there remains significant room for scaling up inclusiveness in net zero policies by enhancing financial and non-financial support and expanding the scope of vulnerable energy users eligible for support.

Policy Recommendations

It is critical to develop a net zero society that brings socio-economic benefits to everyone. Clean energy presents a cost-effective opportunity to reduce energy poverty and improve access to energy for all. Nonetheless, investing in clean energy and energy efficiency solutions is expensive in the initial stage, and there remains low awareness of their benefits. To realise the full potential of clean energy, social and economic incentives and support measures must be strengthened and widely implemented. The following recommendations are based on an analysis of the 7NCs and aim to guide policymakers in developed countries to achieve a net zero transition that ensures equal access to clean energy and energy efficiency solutions for all.

1. Identify vulnerable energy users through data collection and analysis of socio-economic challenges for net zero emissions

Governments should collect and analyse relevant statistics and identify vulnerable energy users facing challenges accessing clean energy and energy efficiency solutions. Understanding, for example, the relationship between the affordability of clean energy and the distribution of clean energy among households by income level provides a crucial basis for planning effective support measures. In the case of the United States (US), low-income families face a disproportionately higher energy burden — the percentage of gross household income spent on energy costs. To assess the energy burdens faced by different households, the US Department of Energy (2022) employs a Low-Income Energy Affordability Data (LEAD) Tool, which has shown that the energy burden for low-income households stands at 8.6%, almost three times higher than the national average.

2. Improve governance mechanisms to harmonise climate change policies with socio-economic policies

To address the complex, cross-cutting sustainability issues involved in achieving the SDGs, governments should develop robust vertical and horizontal governance mechanisms (Okitasari et al. 2019). Governance mechanisms and institutional structures need to be integrated in order to address two critical aspects of just transitions: distributive justice and procedural justice. For distributive justice, governments should reformulate their institutional structures and mechanisms to enhance communications between the environment ministry and line ministries accountable for socio-economic issues, to ensure that all populations have access to and benefit from clean energy and energy efficiency technologies. In addition, governments should

engage vulnerable populations in decision-making processes and policies related to net zero. Johnson et al. (2020) conducted a systematic literature review to analyse the gender and social implications of introducing clean energy and energy efficiency solutions into traditional energy systems, and indicated that energy projects should explicitly aim to include marginalised groups in the planning and implementation of relevant programmes.

3. Enhance support measures for vulnerable energy users to ensure equal access to clean energy through evidence-based information

Ensuring equal access to clean energy and energy efficiency solutions requires governments to implement financial and non-financial support measures for the vulnerable energy users identified in the analysis above. It is also important for governments to disclose their inclusive climate mitigation initiatives to the international community through Biannual Transparency Reports under the Paris Agreement and other international reporting processes. Reporting such efforts will encourage similar action by other countries and contribute to scaling up inclusive decarbonisation.

In the US, for example, efforts by public agencies and solar firms to target lower- and middle-income households helped to expand the adoption of photovoltaic (PV) technology, with the annual median income for PV adopters declining from USD 136,000 in 2010 to USD 113,000 in 2019 (Barbose et al. 2021). The European Commission (2021) has proposed the creation of a Social Climate Fund that will finance temporary direct income support for vulnerable households to reduce emissions from road transport and buildings by implementing emissions trading in these extended sectors. In addition to national and regional efforts, municipal policies on renewables also play a significant role in reducing energy poverty. For instance, Porto Torres (Italy) has provided financial assistance for rooftop solar installations to households in need, while Vienna (Austria) and Martorelles (Spain) have collaborated with energy companies to guarantee the supply of energy to the vulnerable, e.g. cancelling dunning costs and interest, and covering part of electricity bills (REN21 2021).

Notes

This brief is based on analysis of support measures for vulnerable energy users that were reported in the 7th National Communications (7NCs) submitted to the UNFCCC by Annex II countries. The Annex II countries, which pay for costs of developing countries, include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and the United States of America (UNFCCC 2000, 2022).

The analysis employed search strings, including keywords related to vulnerable energy users such as “low-income”, “minority(ies)”, and “indigenous”, and the information was classified by types of vulnerable energy users and means of support.

References

Barbose, G., Forrester, S., O’Shaughnessy, E., & Darghouth, N. 2021. “Residential Solar-Adopter Income and Demographic Trends: 2021 Update.” Berkeley: Lawrence Berkeley National Lab. https://eta-publications.lbl.gov/sites/default/files/solar-adopter_income_trends_final.pdf.

European Commission. 2021. “Proposal for a Regulation of the European Parliament and of the Council Establishing a Social Climate Fund.” Brussels: European Commission. https://eur-lex.europa.eu/resource.html?uri=cellar:9e77b047-e4f0-11eb-a1a5-01aa75ed71a1.0001.02/DOC_3&format=PDF.

Fatima, Z., Oksman, V. & Lahdelma, R., 2021. “Enabling Small Medium Enterprises (SMEs) to Become Leaders in Energy Efficiency Using a Continuous Maturity Matrix.” *Sustainability* 13 (18): 10108. <https://doi.org/10.3390/su131810108>.

IEA. 2021. “The World Energy Outlook 2021.” Paris: IEA. <https://www.iea.org/reports/world-energy-outlook-2021/mobilising-investment-and-finance>.

IPCC. 2018. “An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.” Cambridge and New York: Cambridge University Press. https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_Full_Report_LR.pdf.

Johnson, O.W., Han, J.Y.C., Knight, A.L., et al. 2020. “Intersectionality and Energy Transitions: A Review of Gender, Social Equity and Low-Carbon Energy.” *Energy Research & Social Science* 70 (December): 101774. <https://doi.org/10.1016/j.erss.2020.101774>.

Okitasari, M., Sunam, R., Mishra, R., et al. 2019. “Governance and National Implementation of the 2030 Agenda: Lessons from Voluntary National Reviews.” Tokyo: UNU-IAS. <https://collections.unu.edu/eserv/UNU:7386/UNU-IAS-PB-No18-2019.pdf>.

REN21. 2021. “Renewables in Cities: 2021 Global Status Report.” Paris: REN21 Secretariat. https://www.ren21.net/wp-content/uploads/2019/05/REC_2021_full-report_en.pdf.

UK Government. 2022. “COP26 Presidency Outcomes: The-Climate-Pact.” Glasgow: UK Government. <https://ukcop26.org/wp-content/uploads/2021/11/COP26-Presidency-Outcomes-The-Climate-Pact.pdf>.

UN. 2015. “Transforming Our World: The 2030 Agenda for Sustainable Development.” A/RES/70/1. https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.

UNFCCC. 2000. “Annex II Countries.” United Nations Framework Convention on Climate Change. <https://unfccc.int/cop3/fccc/climate/annex2.htm>.

UNFCCC. 2022. “Parties and Observers.” <https://unfccc.int/parties-observers>.

US Department of Energy. 2022. “Low-income Community Energy Solution. Office of Energy Efficiency and Renewable Energy.” <https://www.energy.gov/eere/slsc/low-income-community-energy-solutions>.

Supporting Vulnerable Populations in the Transition to Net Zero Emissions: Priorities for Developed Countries — No. 35, 2022

© United Nations University
ISSN: 2409-3017
DOI: <https://doi.org/10.53326/XFPR8152>

The views expressed in this publication are those of the authors and do not necessarily reflect the views of the United Nations University.

Authors

Akio Takemoto, Apolline Cros, Masachika Suzuki, and Upalat Korwatanasakul

Publisher

United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS)
Tokyo, Japan



UNITED NATIONS
UNIVERSITY

UNU-IAS

ias.unu.edu