

Ensuring access to energy (Goal 7)

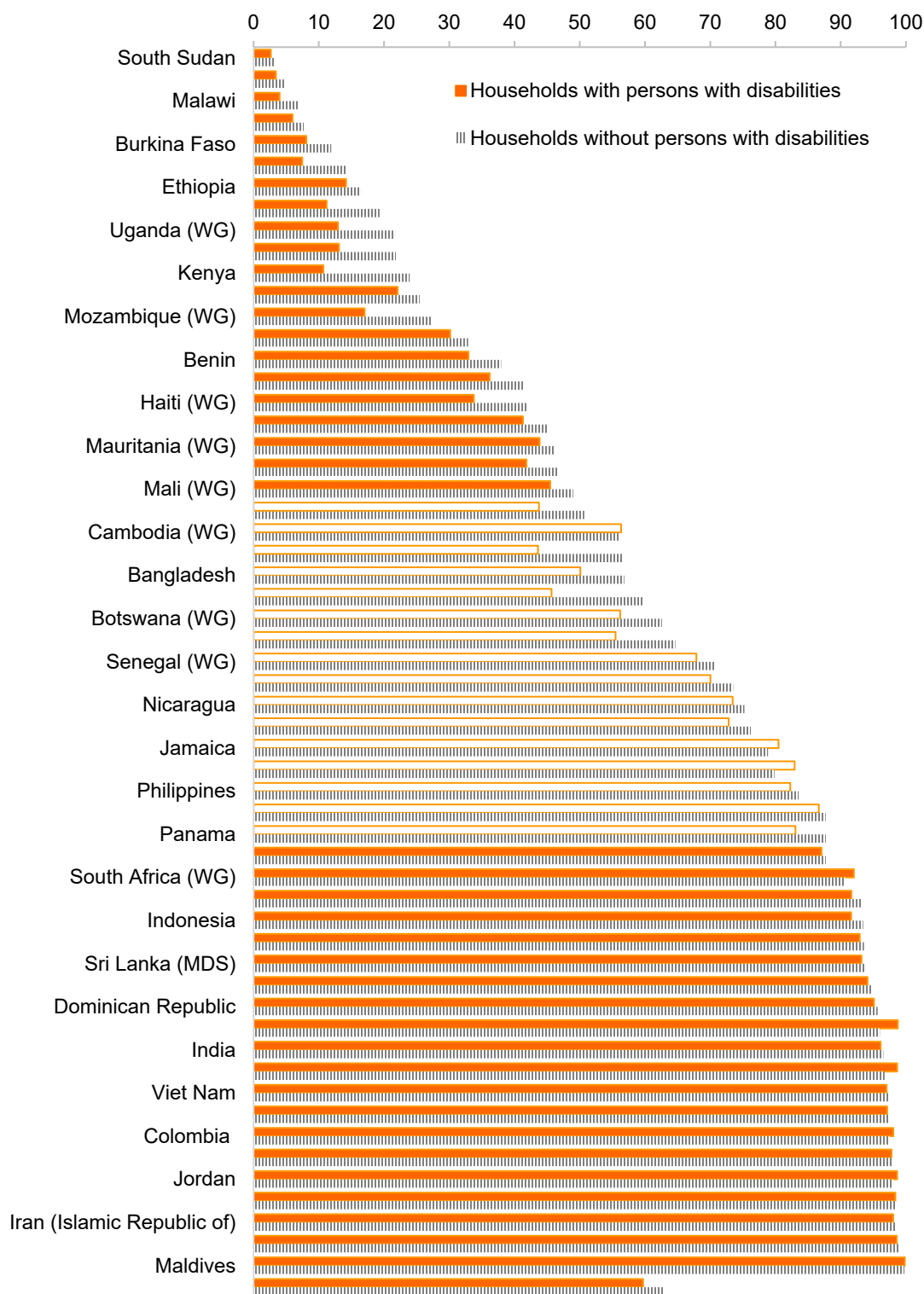
This chapter discusses the current status and progress towards access to energy for persons with disabilities. The 2030 Agenda for Sustainable Development in its Goal 7 calls for access to affordable, reliable, sustainable and modern energy for all, implicitly establishing the goal for persons with disabilities. The Convention on the Rights of Persons with Disabilities (CRPD), adopted in 2006, provides a powerful base for the promotion of access to sustainable energy because the implementation of many of its articles require access to energy for persons with disabilities. Moreover, for many persons with disabilities access to electricity is crucial as they need to use electricity-run assistive technology to live independently or for survival.

Despite this need, the link between energy and the well-being of persons with disabilities has been absent in major international frameworks on energy.³² Recent outcomes have increasingly drawn attention to the need to leave no one behind, focusing on vulnerable groups in energy access but did not address persons with disabilities explicitly. For example, in June 2021, the Executive Note for the G20 Energy Transition Working Group and the G20 Climate Sustainability Working Group, entitled “Energy Poverty: addressing the intersection of Goal 7, development and resilience” recognized that to prepare for a future emergency, either a public health pandemic or a climate-related emergency, governments need to put in place programs that can target populations that will be vulnerable to risks. The Note further stressed the need to ensure that vulnerable lower-income households are protected against financial risk, particularly in the context of the liberalization of energy markets. In addition, the Global Roadmap towards Attainment of Goal 7 – one of the main outcomes of the High-level Dialogue on Energy held in September 2021 – called for leaving no one behind, especially the most vulnerable, on the path to a net zero future, by stressing the need for a global energy transition which is just, inclusive and equitable.

Current situation and progress so far

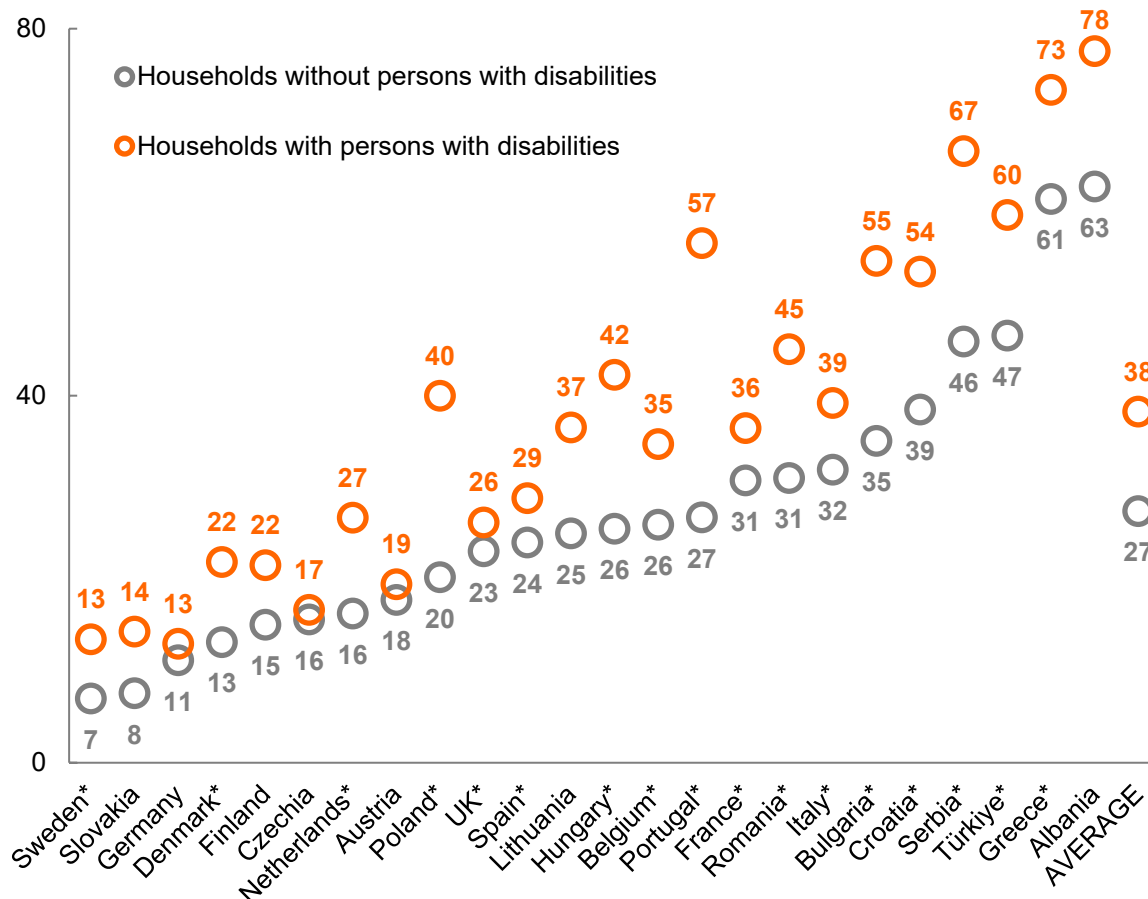
Persons with disabilities are less likely to have access to electricity and may find electricity less affordable than persons without disabilities. In developing regions, on average, 60 per cent of households with persons with disabilities compared to 63 per cent of households without persons with disabilities have access to electricity (Figure 113). In 30 out of 33 countries, access to electricity is lower for households with persons with disabilities than for households without persons with disabilities. The largest gaps between households with and without persons with disabilities are found in Cameroon and the United Republic of Tanzania (13 percentage points) and Mozambique (10 percentage points). Countries with almost universal access tend to have small or no gaps in electricity access between households with and without persons with disabilities; while countries in which electricity access is far from universal tend to show higher gaps in access.

Figure 113. Percentage of households, with and without persons with disabilities, with access to electricity, in 57 countries, in 2021 or latest year available.



*Note: (WG) identifies data produced using the Washington Group short set of questions on functioning.
Source: UNDESA (on the basis of data from DHS,⁶ IPUMS, SINTEF⁹ and WHO).*

Figure 114. Percentage of households that are energy poor, by disability status, in 24 countries, in 2016.



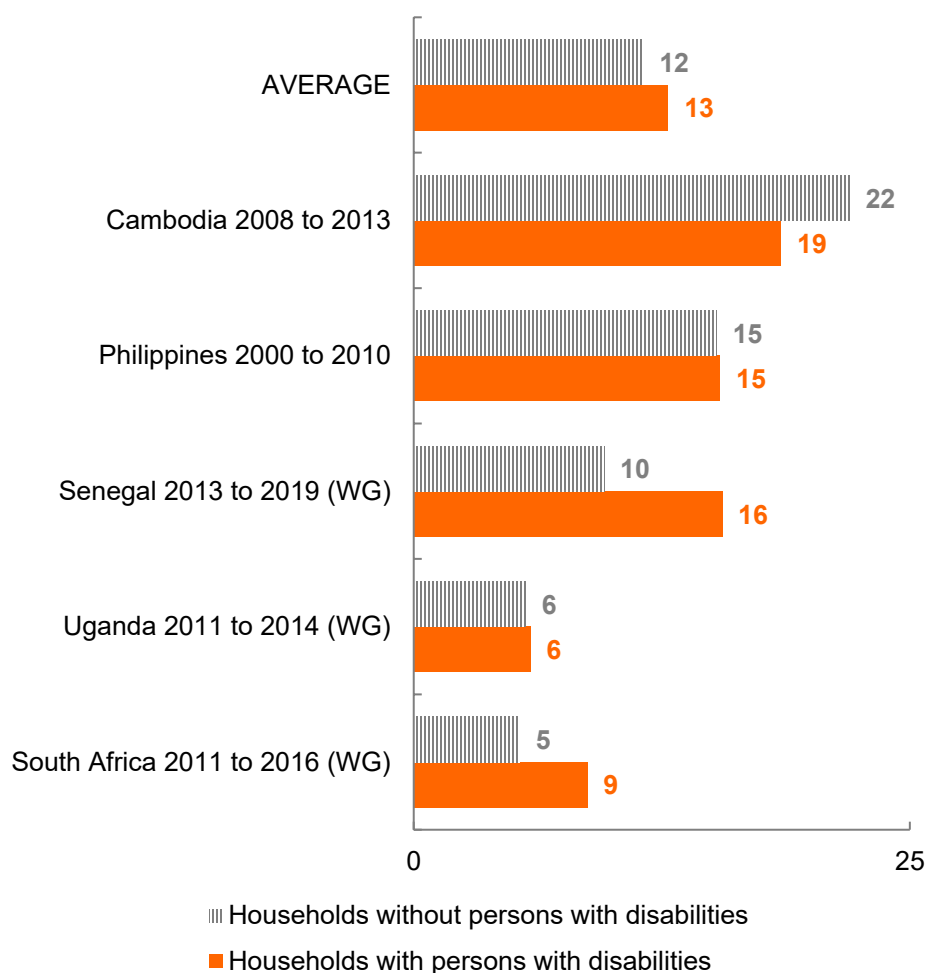
Note: Households that are energy poor refer to households that experience one or more of the following: have rot in windows, doors or floors; have damp or leaks in walls or roof; cannot afford to keep home adequately warm; or have arrears during the past 12 months on utility bills, such as electricity, water or gas. Persons with disabilities in this figure also include persons with chronic illnesses. An asterisk () indicates that the difference between households with and without persons with disabilities is statistically significant at the 5 per cent level.*

Source: Authors' elaboration (on the basis of data from the European Quality of Life Survey 2016).

In European countries, households with persons with disabilities are more likely to be energy poor than households without persons with disabilities (Figure 114), that is, they are more likely to experience one of the following characteristics: have rot in windows, doors or floors; have damp or leaks in walls or roof; cannot afford to keep home adequately warm; or have arrears during the past 12 months on utility bills, such as electricity or gas. In 24 countries in Europe, on average, 38 per cent of households with persons with disabilities compared to 27 per cent of households without persons with disabilities are energy poor. In 10 countries, the gap between households with and without persons with disabilities is higher than 10 percentage points, with the highest gap being 30 percentage points, in Portugal.

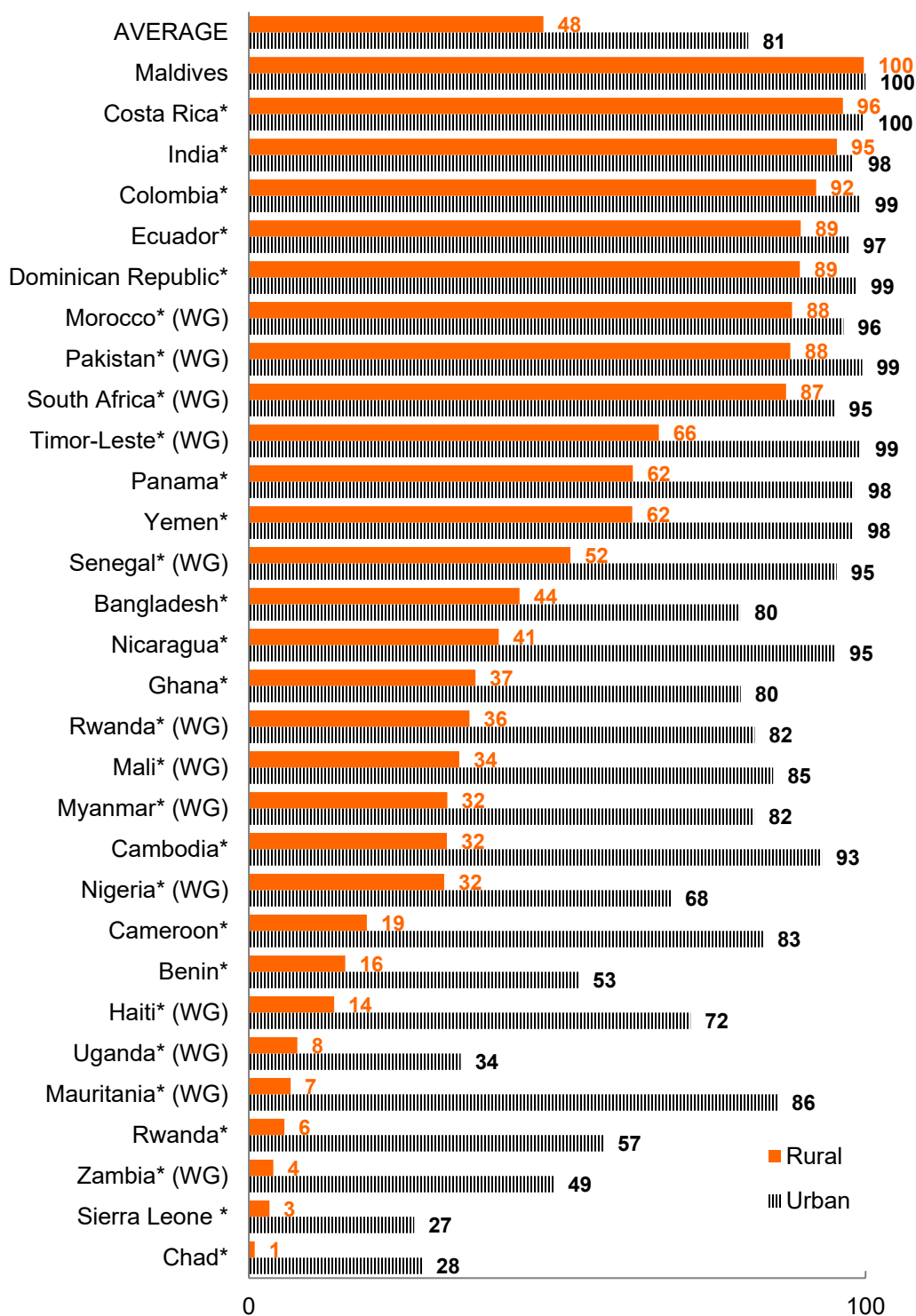
Countries have been making progress in providing access to electricity, including for persons with disabilities (Figure 115). For instance, among five countries, access to electricity increased by 12 percentage points for households without persons with disabilities and by 13 percentage points for households with persons with disabilities. In four countries – Philippines, Senegal, South Africa and Uganda – progress for households with persons with disabilities has been similar to or higher than for households without persons with disabilities.

Figure 115. Progress made by countries in access to electricity, in percentage points, by disability status, in 5 countries, in 2000-2019.



Note: (WG) identifies data produced using the Washington Group short set of questions on functioning.
Source: UNDESA (on the basis of data from DHS⁶ and IPUMS⁸).

Figure 116. Percentage of households with persons with disabilities with access to electricity, by area of residence, in 30 countries, in 2021 or latest year available.

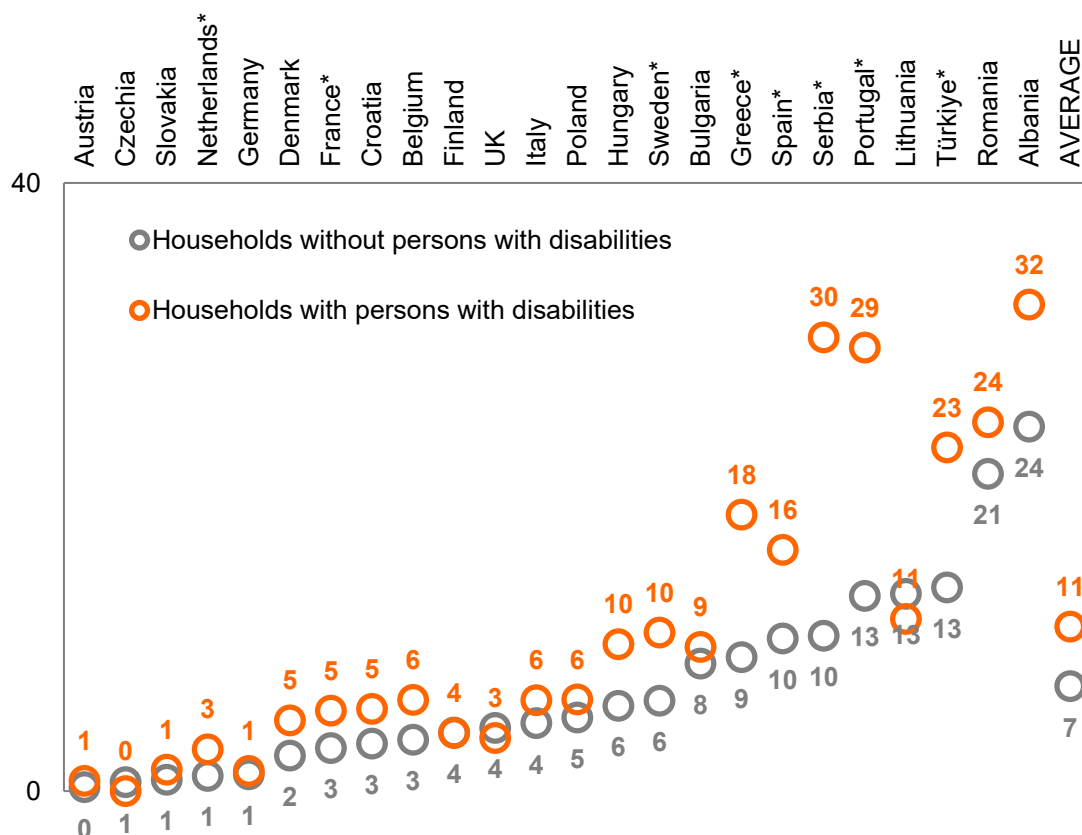


Note: (WG) identifies data produced using the Washington Group short set of questions on functioning.
Source: UNDESA (on the basis of data from DHS,⁶ IPUMS and SINTEF⁹).

There is a clear rural/urban divide for persons with disabilities and access to electricity (Figure 116). Among 30 countries, there is a higher rate of access to electricity for persons with disabilities living in urban areas than for those in rural locations: 81 per cent of households with persons with disabilities in urban areas have access to electricity compared to 48 per cent in rural areas. In seven countries, the difference in access to electricity for persons with disabilities in urban and rural areas exceeds 50 percentage points, with the highest difference recorded in Mauritania (79 percentage points).

Across Europe, a lack of adequate heating or cooling facilities is highest among households with persons with disabilities (Figure 117). The largest gaps in lack of heating or cooling facilities between households with and without persons with disabilities occur in Serbia (20 percentage points), Portugal (16 percentage points) and Greece (9 percentage points).

Figure 117. Percentage of households lacking heating or cooling facilities, by disability status, in 24 countries, in 2016.



Note: Persons with disabilities also include persons with chronic illnesses. An asterisk () indicates that the difference between households with and without persons with disabilities is statistically significant at the 5 per cent level.*

Source: Authors' elaboration (based on European Quality of Life Survey 2016).

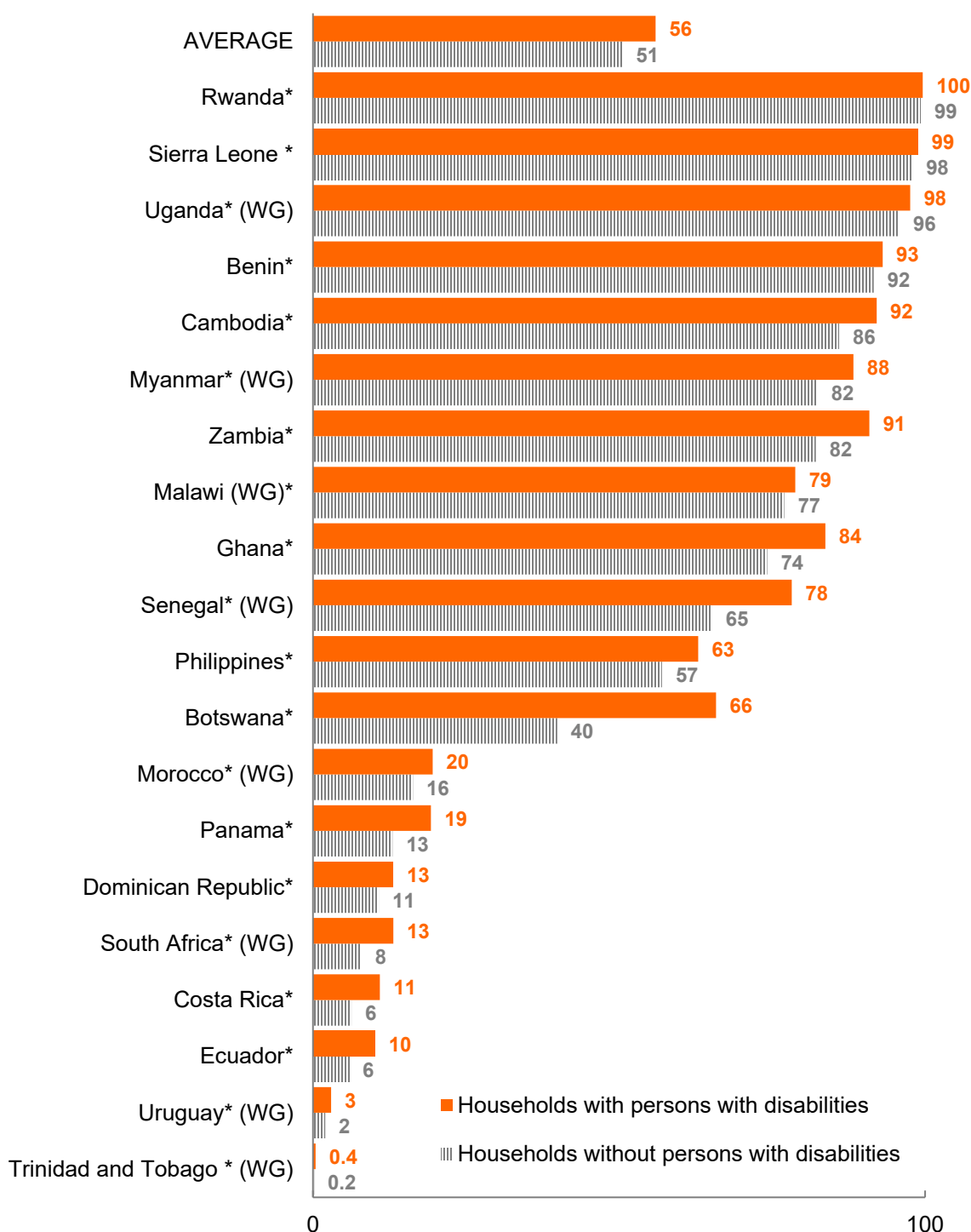
Within the home, indoor air pollution remains an issue in many countries due to cooking and heating using open fires and inefficient stoves burning kerosene, biomass (wood, animal dung or crop waste) and coal in poorly ventilated conditions. Many persons with disabilities spend more time at home, and thus are more exposed to this indoor air pollution. This exposure is linked to cardiovascular disease, chronic obstructive pulmonary disease and lung cancer. Among 20 developing countries, a higher percentage of households with persons with disabilities than households without persons with disabilities use wood or coal for cooking instead of a clean cooking fuel. On average, 56 per cent of households with persons with disabilities versus 51 per cent of households without persons with disabilities use wood and coal (Figure 118). The largest gaps are found in Botswana (26 percentage points) and Senegal (13 percentage points).

Across 14 countries, use of wood and coal for cooking is higher in rural areas (Figure 119). On average, 66 per cent of households with persons with disabilities in rural areas, compared to 32 per cent in urban areas use wood or coal for cooking. In all countries, the use of wood and coal is higher in rural areas than in urban areas, with the largest gaps in Zimbabwe, in which 96 per cent of households with persons with disabilities in rural areas use wood or coal while only 20 per cent of households with persons with disabilities in urban areas use wood or coal.

Persons with disabilities often have higher energy needs, including additional heating/cooling, (de) humidifiers, increased personal cleaning, increased laundry, breathing apparatus, home-based mobility aids, hoists, lifts and assistive technology. Energy needs are vastly different between and even within types of disability, and also sit within the wider context of the household itself, and what other energy needs may exist. Energy needs are not fixed and can fluctuate seasonally – some types of disabilities may result in higher energy needs for heating or cooling. As persons with disabilities are at higher risk of experiencing poverty (see the chapter on Goal 1), these increased energy costs can place greater pressure on them, and they may not be able to afford energy bills.

A number of other factors may also exacerbate lower access to energy among persons with disabilities. Accessing the cheapest forms of energy often requires a bank account and regular income, whereas the most expensive forms of energy are offered on a pay-as-you-go basis. As many banks worldwide remain not accessible for persons with disabilities (see the chapter on Goal 1) and persons with disabilities face barriers to accessing the job market and receiving regular income (see the chapter on Goal 8), they may not have access to the cheaper energy tariffs. Moreover, there may be additional barriers that prevent persons with disabilities from implementing features in their home that might reduce energy bills, including a lack of space, being unable to pack or move items around the home, and the potential disruption of having home improvements or people in the home.

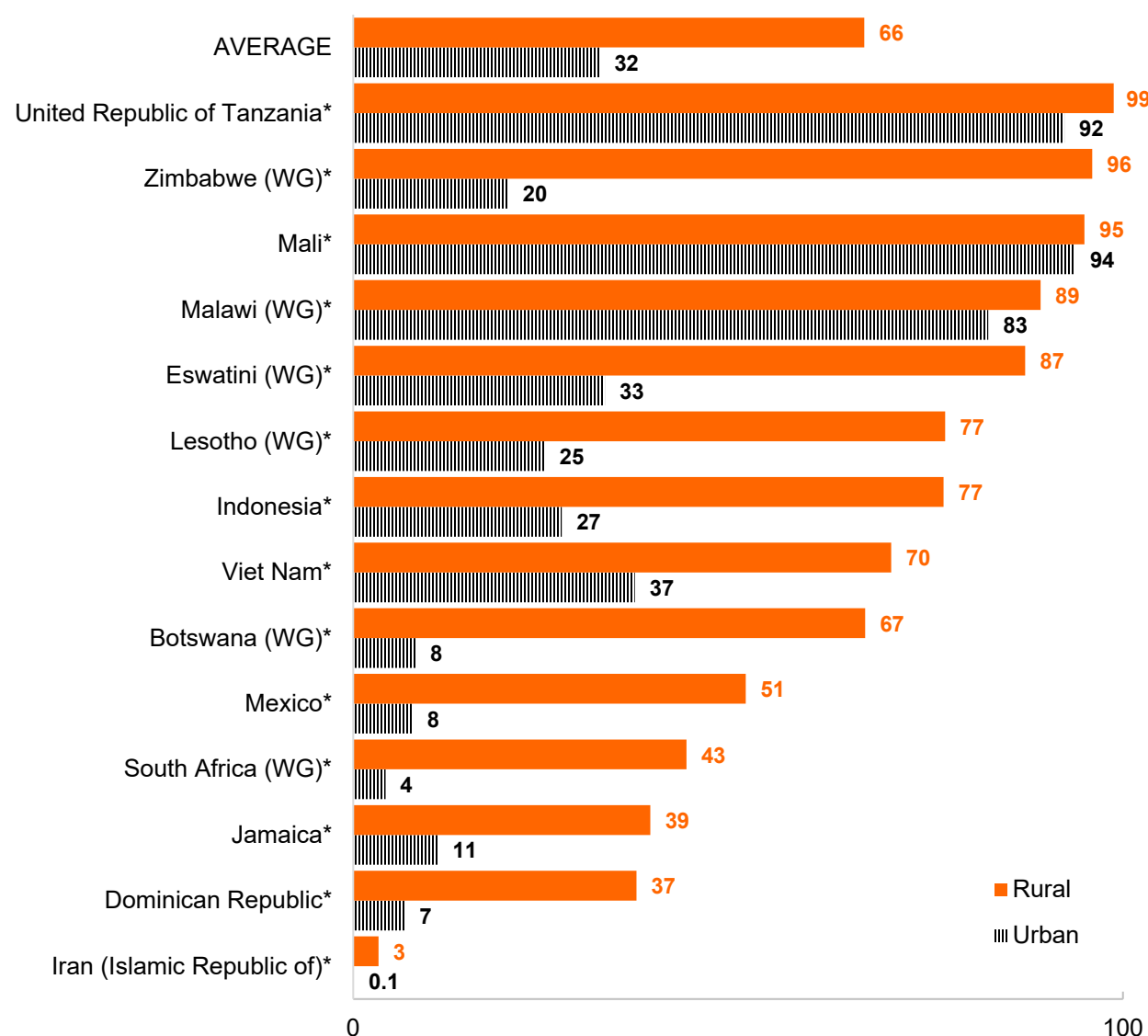
Figure 118. Percentage of households cooking with wood or coal, by disability status, in 20 countries, in 2017 or latest year available.



Note: (WG) identifies data produced using the Washington Group short set of questions on functioning. An asterisk () indicates that the difference between households with and without persons with disabilities is statistically significant at the 5 per cent level.*

Source: UNDESA (on the basis of data from IPUMS).

Figure 119. Percentage of households with persons with disabilities cooking with wood or coal, by area of residence, in 14 countries, in 2017 or latest year available.



Note: (WG) identifies data produced using the Washington Group short set of questions on functioning.
Source: UNDESA (on the basis of data from IPUMS).

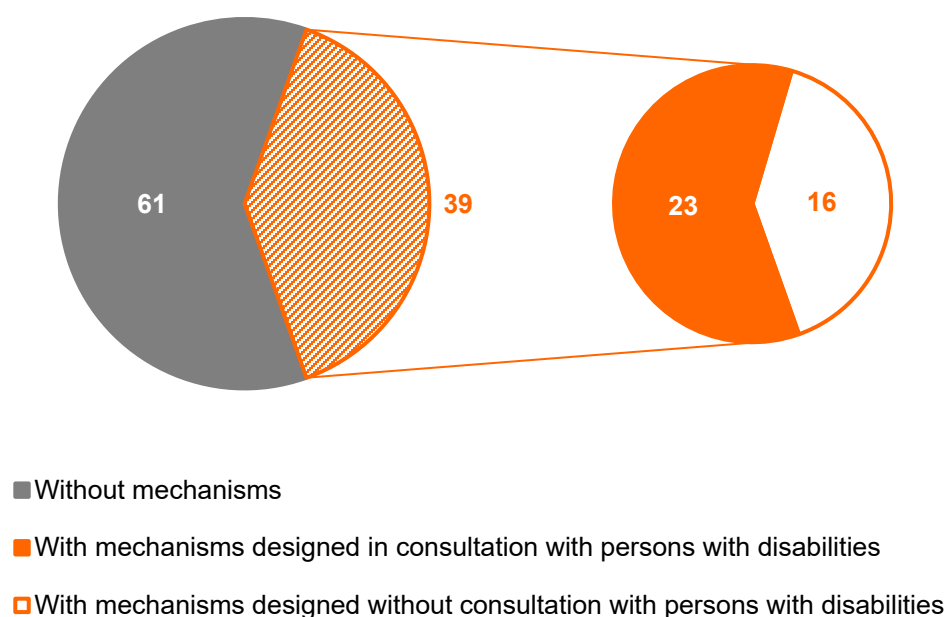
The governance of domestic energy at the national, regional, local and community levels can also impact energy access for persons with disabilities. For instance, the extent to which energy markets are regulated, the way in which energy is provided to the home, charging systems and pricing structures all affect access. In terms of markets, regulating the energy power market through government subsidies and price limits can significantly protect vulnerable populations, including persons with disabilities, from gas and electricity price increases, while free market approaches can lead to sharp increases in energy poverty rates. Persons with disabilities face more barriers to managing and dealing with financial shocks³²

and may be more affected by unregulated energy markets.

Energy infrastructure issues can significantly improve or worsen access to energy for persons with disabilities. Persons with disabilities may face more barriers to energy access in rural and coastal areas as well as small islands as these areas tend to be less often connected to electricity grids. Moreover, persons with disabilities living in small island developing States may also face more barriers to accessing affordable uninterrupted energy access as these States are often highly reliant on expensive fossil fuel imports, are more vulnerable to energy price shocks and also experience interrupted supply.

Black-outs can compromise the use of electricity-run assistive technology; more than a quarter of priority assistive products require electricity to run.³² Yet, in 2023, among 23 countries, only 39 per cent of countries had mechanisms to assist persons with disabilities using electricity-run assistive devices during a power outage; only two-thirds of these mechanisms were designed in consultation with persons with disabilities (Figure 120).

Figure 120. Percentage of countries with mechanisms to assist persons with disabilities using electricity-run assistive devices during a power outage, among 23 countries, in 2023.



Source: UNDESA.³¹⁰

Lack of affordable and reliable access to energy can push persons with disabilities to rely on alternative forms of energy such as bottled liquefied petroleum gas and heating oil (which are often more expensive and less convenient), indoor fires, candles, gas burners or cutting peat to burn for warmth (which come with a range of risks caused by the indoor air pollution they create). Lack of access to affordable energy

can also lead to practices such as energy rationing and self-disconnection as a result of tight budgets that are under pressure, something that is especially harmful for persons with disabilities who rely on energy services for their independent living, including through the use of electricity-run assistive technology.

Moreover, there can be a range of other adverse consequences for persons with disabilities when their energy needs are not met. Inadequate ambient temperatures can cause both physical and mental health problems that can turn into long-term health conditions, can exacerbate existing physical and mental health conditions and can compromise the achievement of Goal 7 and Goal 3 (see the chapter on Goal 3). In countries with colder temperatures, there tends to be a focus on poor housing conditions such as damp and mould and low ambient temperatures. Existing heart and circulatory diseases and respiratory conditions can be exacerbated by poor housing conditions associated with energy poverty, and new health conditions may be brought on. Higher ambient temperatures, and longer periods of warmth may be necessary in order to maintain a person's existing health status. For example, Parkinson's disease restricts physical activity, which slows body heat generation and conservation, whereas someone with chronic obstructive pulmonary disease might require a heating regime that is higher than the standard in order to prevent both short-term and longer-term health consequences – in both cases there are likely to be higher energy costs, with negative health consequences at stake if energy needs are not met.³¹¹

While cold and damp both drive and exacerbate long-term health conditions, so too does excess heat. Increased temperatures (for example, heatwaves) have the potential to negatively affect the mental status of persons with mental and psychosocial disabilities.³¹² Mitigating the effects of heat may require running electrical equipment such as air conditioners, fans and other cooling devices, which require suitable infrastructure, and without policy intervention, will add to household energy costs.

Apart from health consequences, the cost of energy may also create financial pressures elsewhere, exacerbating poverty, deprivation and exclusion: persons with disabilities may decide to go without other essential goods and services; miss out on other key areas of life such as education or employment in order to meet energy needs.

Policy, regulation and administrative arrangements can exacerbate or improve the circumstances of persons with disabilities, both directly through energy policy, and indirectly through the interaction of broader social security policies with energy services. Policy measures that act to reduce energy costs or to raise incomes (for example, through disability-related social security payments) are usually the most successful, as they provide financial compensation for the additional energy costs associated with disabilities. There are various national examples of support being provided for persons with disabilities to mitigate the effects of high energy costs, such as social energy tariffs, rebates, caps on bills, one off payments, discounts, subsidies and financial top ups (Box 5). This support is sometimes provided through social protection schemes or through direct support for energy bills.

Many of the schemes in place have limitations in terms of eligibility, leaving out persons with disabilities who may need assistance to afford enough energy to cover their needs. Determining eligibility for support

for energy needs for persons with disabilities can be costly and time consuming, especially given the broad range of disabilities and the variation of energy needs across types of disabilities. A tailored energy support intervention might require numerous home visits and follow up. Given these challenges, many schemes use blunt eligibility criteria. Some schemes only cover persons with disabilities of retirement age, others only cover working age persons with disabilities if they meet the criteria for low income or receive disability benefits. In some cases, schemes do not cover all potential beneficiaries and coverage is only guaranteed while there are sufficient funds.

Box 5. Supporting energy costs for persons with disabilities

Social tariffs in Belgium: Since the completion of the market for gas and electricity in 2007, a federal law defines the concept of protected residential consumers with low incomes or in precarious situations. Those protected consumers have the right to access electricity and gas at a reduced rate. The status of protected consumer is granted to a household, if one of its members belongs to certain social categories: people receiving minimum income benefits from public social welfare centres; or people receiving an income replacing benefit or a disability benefit.

Discounted bills in Croatia: The Croatian Energy Act, adopted in 2012 and amended in 2018, affirms that persons with disabilities have the right to a supply of energy, guarantees a supply of electricity for persons with disabilities in crisis situations and entitles persons who receive disability benefits to a monthly reduction in their electricity bills.

Discounted bills in the United Kingdom: The Warm Home Discount Scheme provides a discount on energy bills, paid between October and March, and persons receiving disability benefits are eligible for this scheme.³¹³

One off payment in the Republic of Moldova: During the 2022 energy crisis, the European Union provided funding for direct financial assistance to support persons during the winter through the energy crisis. Support was targeted based on vulnerability criteria, including the number of persons with disabilities in the household.³¹⁴

One off payment in the United Kingdom: A one off payment is made to persons of working age who are in receipt of low-income benefits and: (i) receive a disability benefit, or (ii) have a child with disabilities. This support consists of a payment for each seven day period of very cold weather (zero degrees Celsius or lower) between 1 November and 31 March.³¹⁵

To counter these challenges and provide more tailored support, an emergent trend in policies supporting the energy needs of persons with disabilities is *social prescribing*, in which support to energy bills or energy bill discounts as well as home energy efficiency systems and improvements can be prescribed by health or social care practitioners. For example, in the United Kingdom, persons with respiratory

conditions that are exacerbated by the cold, such as Chronic Obstructive Pulmonary Disease, received improvements to their home such as new energy efficient boilers, double glazing and insulation.³¹⁶ After these interventions, the beneficiaries needed fewer medical appointments, had improved mental health and reduced energy poverty.

Structural issues often exist at the national level that impede the development of effective policies on access to clean energy for persons with disabilities. Ministries and national entities that work on policies for persons with disabilities, housing, climate change, social security and energy tend to operate separately, and often there is an insufficient understanding about the intersection of these issues at the household level. In particular, an emergent issue that affects energy access for persons with disabilities is climate change and climate policies. Many climate policies focus on mitigation (reducing carbon emissions). Mitigation policies are likely to have direct impacts on persons with disabilities as they are likely to affect household energy the most. Countries pursuing a net zero agenda are likely to see a range of changes that affect domestic energy use including housing retrofit to improve energy efficiency, changes in the types of energy used in the home – for example, hydrogen, micro-generation and a switch to home car charging. In countries with lower energy access, mitigation strategies may include any of the above, but often also include a development angle, such as rural electrification using renewable energy. Household-level, low-carbon policies may bring about a period of rapid change. If not well planned to consider and address the rights, perspectives and needs of persons with disabilities, these changes to the physical energy infrastructure of the home and the energy services provided can have a harmful impact on persons with disabilities.

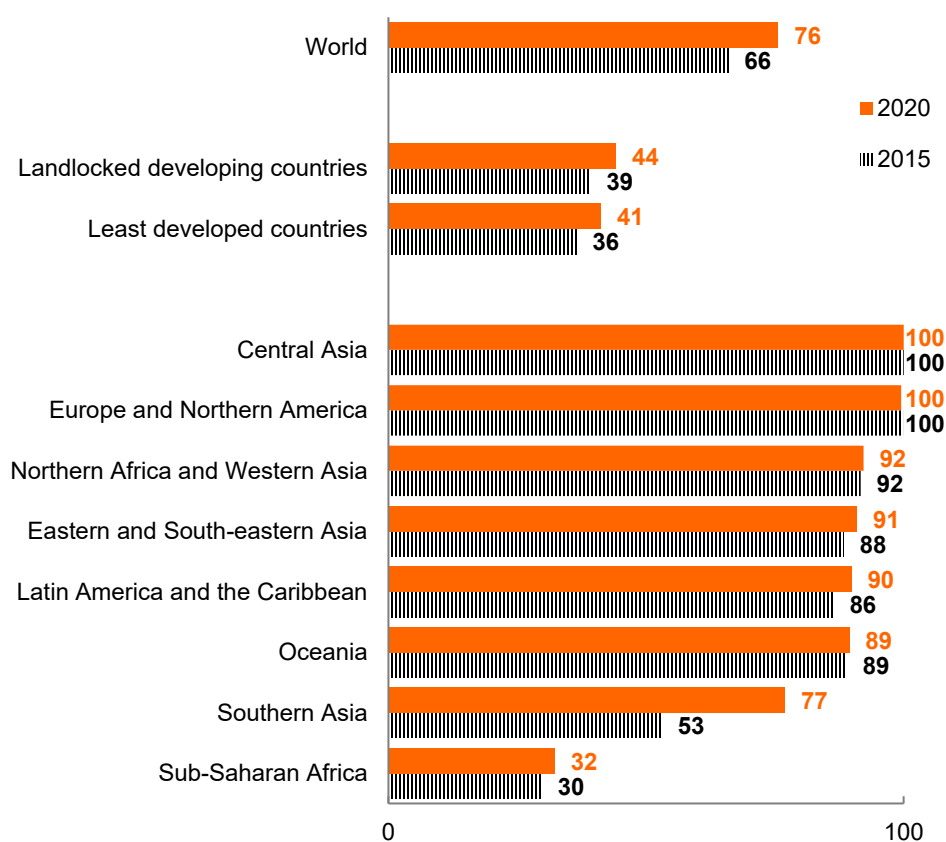
Persons with disabilities may need adjustments when undergoing changes to their heating system or home insulation. Adjustments may include the provision of physical support help such as moving items of furniture and clearing space. Adjustments may also be needed to avoid disruption to carefully planned home layouts and routines that some persons with disabilities may need. Moreover, interventions need to be planned around the energy needs of persons with disabilities. For instance, if a member of the household uses assistive technology reliant on energy, this needs to be taken into account whilst any work on energy infrastructure and services is being undertaken to avoid disruptions in energy access and ultimately in access to assistive technology. A one-size-fits-all approach to energy improvements tends to miss the needs of many persons with disabilities. Furthermore, any interventions should also be designed for all, including persons with disabilities, or adapted to persons with disabilities; for example, ensuring that smart home technology is accessible to persons with visual impairments. Without considering the needs and perspectives of persons with disabilities, persons with disabilities either (i) cannot carry on with the improvements and are left with outdated and increasingly expensive home energy systems or (ii) endure the improvements and end up with energy systems that are not fit for them.

Moreover, the requirement for a household with persons with disabilities to make a financial contribution to a new intervention can be prohibitive, especially for poorer households, even if there is a medium- to

long-term financial benefit. Persons with disabilities may not be able to take the financial risk.

There are several ways in which these potential risks can be mitigated. In terms of policy design, engagement with persons with disabilities and the organizations that represent them has been found to improve policy settings, reduce the unintended consequences of policies, and improve access to support, for example, by removing barriers that prevent access to measures such as restrictive eligibility criteria and additional costs. In terms of policy implementation, ensuring that where persons with disabilities have specific needs in terms of applying for measures, their installation or their function, these are addressed. Positive examples of this working well include: a single point of contact throughout the installation process, support with the application process including eligibility checks and other paperwork, and the provision of adapted measures that are tailored towards the needs of persons with disabilities.

Figure 121. Percentage of primary schools with access to electricity, by region, in 2015 and 2020.



Note: For Central Asia, 2015 data are from 2016; for Latin America and the Caribbean, 2020 data are from 2019; and for Oceania, 2020 data are from 2017.

Source: UN SDG indicators database.²⁸⁵

Despite the challenges, the acceleration of changes in household energy systems to more efficient and less polluting systems has the potential to have positive effects for persons with disabilities. Indoor living

conditions without energy access, energy efficiency or using polluting energy sources are especially dangerous for persons with disabilities. Improvements to these provide multiple benefits in terms of health and well-being. The increasing use of smart technology in household energy systems can also be enabling for many persons with disabilities.

Lack of electricity in schools prevents students with disabilities from accessing and using electricity-run technology, including assistive technology, that would enhance inclusive education and allow them to participate in education independently. Many schools, particularly in developing countries, still lack electricity – a barrier to operating ICT and assistive technologies to ensure the inclusion of students with disabilities and also a barrier to ensure the school environment is accessible (for example, with good lighting). In 2020, 76 per cent of primary schools worldwide had access to electricity up from 66 per cent in 2015 (Figure 121). Primary schools in sub-Saharan Africa had the lowest level of access: 32 per cent in 2020, showing barely any progress from 2015 (30 per cent); followed by Southern Asia, where 77 per cent of primary schools had access in 2020, a remarkable improvement from 53 per cent in 2015. In other regions, the percentages are higher. Both least developed countries and landlocked developing countries show low levels of access to electricity in primary schools (less than half the schools have access) and little progress since 2015.

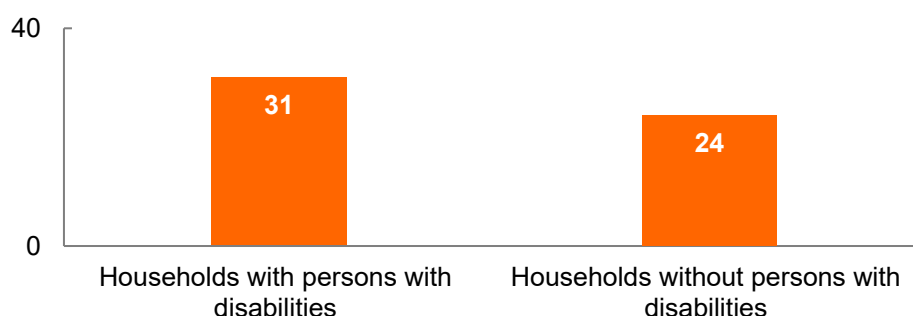
Impact of the COVID-19 pandemic

The COVID-19 pandemic brought challenges to affording access to energy, especially for persons with disabilities. In 2020, worldwide, a higher proportion of households with persons with disabilities, compared to those without, reported difficulties paying for utility bills: 31 per cent versus 24 per cent (Figure 122). Decreases in income during the pandemic as well as higher energy prices³¹⁷ continued to make it difficult for many persons with disabilities to pay for energy bills well past the year of onset of the pandemic. For example, in the United Kingdom, in 2022, 30 per cent of households with persons with disabilities reported a constant struggle to pay bills, compared to 13 per cent of households without persons with disabilities; persons with disabilities cut back on other necessities in order to manage these rising costs of energy, with 43 per cent of households with persons with disabilities reporting eating lower quality food than usual and 48 per cent struggling to keep their home warm and comfortable.³¹⁸

Several governments, regulators and utility companies responded to the pandemic by putting in place additional protective measures to ensure continuous access to affordable energy during the pandemic.³¹⁹ Six countries developed targeted measures for persons with disabilities. The measures developed for persons with disabilities focused on forbidding energy disconnections or providing financial support for energy bills. For example, the Jamaica Public Service electricity utility applied disconnection suspensions for all essential services, including electricity, for persons with disabilities. Moreover, it put in place payment flexibility for persons with disabilities, as well as a fund for bill relief and other forms of assistance to vulnerable consumers, including customers with disabilities. In Greece, financial assistance

was offered in the form of additional discounts of 8 per cent on the energy bill for persons with disabilities, while in the Mexicali municipality in Mexico, payment support was provided to persons with disabilities. In certain areas in the United Kingdom, a COVID-19 Heating Payment Scheme entitled persons receiving certain disability benefits to a one-time assistance for payment. In the state of Virginia, in the United States, energy assistance programmes were available for heating, cooling, weatherization and other energy needs for persons with disabilities.

Figure 122. Percentage of households that reported difficulties paying utility bills, by disability status, in 2020.



Source: *Save the Children (2020)*.¹⁶

In other countries, protective measures, such as disconnection bans, tariff adjustments and financial assistance, were put in place either for the general population or for certain categories of low-income groups. These measures would have benefitted low-income persons with disabilities as well. For example, in Spain, energy disconnections were forbidden for beneficiaries of the social bonus for energy, including persons with disabilities.

Summary of findings and the way forward

Since 2018, many countries succeeded in expanding access to electricity and this trend also benefited persons with disabilities. Several countries have now reached close to universal access for both persons with and without disabilities. However, for countries that remain with mid to low levels of electricity access, persons with disabilities experience more challenges in accessing electricity than persons without disabilities; and many of the barriers and inequalities identified in the *Disability and Development Report 2018* remain.

Disability continues to be largely absent from the international energy discourse and more political commitment to highlight the nexus between energy poverty and disability is needed. Persons with disabilities face more barriers to accessing the financial means to pay for energy, they often have higher energy needs and many persons with disabilities rely on electricity-run assistive technology for

independent living or survival. Yet, in 2023, only 39 per cent of countries had mechanisms to assist persons with disabilities using electricity-run assistive devices during a power outage; and only two-thirds of these mechanisms were designed in consultation with persons with disabilities.

In developing countries, gaps in electricity access between households with and without persons with disabilities reach 10 percentage points or more in several countries with low to medium access to electricity. Persons with disabilities living in rural areas have even lower access. In many countries, the percentage of households with persons with disabilities in rural areas that have access to electricity is less than half that of urban areas. Moreover, households with persons with disabilities in rural areas are twice as likely to use polluting forms of energy like wood and coal, thus endangering the health of persons with disabilities and their household members. In European countries, households with persons with disabilities are more likely to be energy poor than households without persons with disabilities, with gaps reaching 10 percentage points or more in several countries.

Access to electricity is crucial in schools to allow the use of electricity-run assistive technology by students with disabilities. Worldwide, the percentage of primary schools with access to electricity has increased from 66 per cent in 2015 to 76 per cent in 2020, with most regions in the world having now universal or close to universal access to electricity. An exception to this progress is sub-Saharan Africa where only about a third of primary schools have electricity access and little progress has been made since 2015. Worldwide, with current rates of progress, 95 per cent of primary schools are expected to have electricity by 2030. To reach 100 per cent of primary schools by 2030, the rates of progress need to accelerate to 1.2 times faster than the rates of progress observed since 2015.

The COVID-19 pandemic brought additional challenges. Energy prices soared and many persons with disabilities lost jobs, income and other financial means, leading to about one third of households with persons with disabilities facing difficulties paying for utility bills. Ad hoc measures were adopted in a few countries to support energy access for persons with disabilities during the COVID-19 pandemic – continuing these measures in the post-COVID-19 world will provide relief for persons with disabilities who need them. Several countries have been using various forms of assistance such as disconnection bans, tariff adjustments and financial assistance. Furthermore, an emerging positive trend in energy-disability policy is *social prescribing*, in which the support is tailored by considering the individual energy needs of the person with disabilities as these needs can vary by type and severity of disability.

With the cascading crises of the COVID-19 pandemic, conflict and climate change, interruptions in energy access could become more frequent. Devastating disasters caused by natural hazards are on the rise and can cause interruptions in electricity access lasting for days. Current conflicts are also affecting energy availability. Energy costs have been on the rise and may increase further. This energy crisis, compounded by historical inequalities in energy access for persons with disabilities, can cause further

barriers for independent living for persons with disabilities and, for those who depend on electricity-run assistive technology for survival, it can lead to death.

Changes in household energy systems to make them more efficient and less polluting have the potential to benefit persons with disabilities in terms of affordability, health and well-being. However, these changes are still often planned without a meaningful consultation with persons with disabilities and their representative organizations and without considering the perspectives and needs of persons with disabilities. Improvements in energy systems can lead to disruptions in the use of electricity, disruptions in the use of life-saving assistive technology and disruptions to carefully planned layouts and routines that persons with disabilities may need. Many persons with disabilities would not be able to go through such disruptions. As a result, persons with disabilities may end up with inefficient and polluting forms of energy.

To improve energy access for persons with disabilities in line with Goal 7, suggested actions are outlined below:

1. Take into consideration the extra energy costs which persons with disabilities are faced with and the co-benefits of including support to energy access in determining social protection measures for persons with disabilities. Persons with disabilities tend to have higher energy consumption and, therefore, higher energy bills. Electricity-run assistive technology, which many persons with disabilities need to live independently, may increase energy consumption. Social welfare programmes can play a crucial role in providing financial support for persons with disabilities to access the energy they need. These programmes should be accessible for persons with disabilities and should be developed in consultation with persons with disabilities to take their perspectives into account.

2. Include special measures for persons with disabilities in energy programmes. Initiatives and programmes launched by countries, local governments, international organizations, civil society and the private sector aiming at expanding access to energy should include targeted actions for persons with disabilities to ensure they also benefit from these initiatives and are not left behind. These special measures should pay attention to the energy needs of persons with disabilities to secure their access to affordable and reliable energy. Special measures can include direct support for energy, for example, through mechanisms such as social tariffs, grants and discounts. Supporting affordable energy equipment and technology, such as batteries, is also key.

3. Close the gap in energy access between persons with and without disabilities and close the rural-urban gap in energy access for persons with disabilities. This will require a focus on countries with lower electricity access, because in these countries the energy access gap between households with and without persons with disabilities tends to be wider. Rural areas tend to have lower access to electricity and may require special measures.

4. Prioritize electricity access for persons with disabilities who require electricity-dependent assistive technology for survival, independent living and for participation in society. Electricity services should reach persons with disabilities who require electricity-run assistive technology. In the absence of household electricity, charging at public facilities or off-grid systems (that is, stand-alone and mini-grid systems), like solar power off-grid systems, could be considered. These alternatives should be particularly considered for persons with disabilities living in rural and remote areas where power lines are not always available. Establish mechanisms for ensuring electricity access during electricity service disruptions and blackouts to persons with disabilities who use life-saving electricity-run assistive technologies.

5. Reduce use of solid fuels and promote modern and clean forms of energy in the households of persons with disabilities. Initiatives and programmes to reduce the use of solid fuels and to promote the use of energy efficient stoves using modern forms of energy should reach households with persons with disabilities as a priority, as many persons with disabilities tend to spend longer periods at home than persons without disabilities and therefore have higher risks of exposure to indoor pollution. It will also save persons with disabilities, particularly women and girls with disabilities, from exposure to violence while collecting firewood. Targeted actions should be developed for rural areas, as the use of solid fuels is particularly high in households with persons with disabilities in these areas.

6. Invest in providing access to electricity in schools to enhance opportunities for students with disabilities to participate equally in educational systems. Access to electricity in schools is a prerequisite for effective participation for many students with disabilities, particularly those who rely on assistive technology. For many persons with disabilities, this technology can enhance their access to educational tools, and can improve their communication with teachers and schoolmates. Efforts to provide access to electricity are particularly needed in primary schools in sub-Saharan Africa, in least developed countries and in landlocked developing countries.

7. Include persons with disabilities in national governing bodies working on energy access. The inclusion of persons with disabilities in these bodies, such as national energy committees, energy advisory boards and energy dispute tribunals, could play a vital role in addressing the energy needs of persons with disabilities in the implementation of energy policies. Advisory committees on electricity typically provide advice to policymakers in the implementation of energy acts or policies, on electricity reliability, security and policy issues, review electricity programmes and initiatives and identify emerging issues. Persons with disabilities must be engaged in these decision-making processes to ensure that their needs are adequately addressed in acts, policies and programmes.

8. Raise awareness within ministries and promote coordination among ministries to address energy poverty among persons with disabilities. At the national level, the bodies with mandates relating to disability, assistive technology, social protection and energy are usually different. But these

areas are interlinked, and more inter-ministerial coordination will be needed to address this nexus. Discussions on the energy poverty of persons with disabilities will need to be linked to discourses around assistive technology and vice-versa, because being energy poor impacts the use of assistive technology, which in turn impacts the independent living of persons with disabilities and their enjoyment of human rights.

9. Increase the availability of high-quality data on energy access for persons with disabilities, especially in developing countries. Routinely collect data disaggregated by disability on access to electricity (SDG indicator 7.1.1) and on primary reliance on clean fuels and technology (SDG indicator 7.1.2). Further disaggregate these data by gender and area of residence (rural and urban).

10. Make clean energy transition and climate mitigation policies inclusive of persons with disabilities. Climate policy agendas are likely to lead to changes in energy infrastructure, the provision of energy, associated policy and regulation. This is likely to affect how households use energy both within the home and beyond. There are many opportunities to make this a positive, enabling and inclusive transition. However, there is also the risk that persons with disabilities may be left behind and, as a result, further marginalized and excluded. Policymakers should engage with civil society, especially representative organizations of persons with disabilities, and relevant stakeholders to ensure that the needs of persons with disabilities are considered throughout policy design and implementation.