SUMMARY

SUSTAINABLE ENERGY FOR ALL

GLOBAL TRACKING FRAMEWORK

Progress toward Sustainable Energy

2017

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FOREWORD

THE GLOBAL TRACKING FRAMEWORK A CLARION CALL TO LEADERS

This year's *Global Tracking Framework* (GTF) is an urgent call for leaders to take greater, more focused action to deliver sustainable energy for all.

We have just 13 years to meet the Sustainable Development Goals. Doing so will require a rapid increase in energy productivity, a new generation of institutions to manage our energy systems, an integrated approach that embraces centralized and decentralized sources, and a greater share of renewables in the mix. Securing this energy transition will be a critical contribution to the delivery of other Sustainable Development Goals (SDGs). Sustainable energy powers education and health systems, new businesses in previously unserved communities, jobs, manufacturing and industrialization, and water storage and food security.

To meet the Sustainable Development Goal for energy (SDG 7), Sustainable Energy for All and our partners are working to advance progress on three 2030 objectives: ensure universal access to modern energy services; double the share of renewable energy in the global energy mix; and double the global rate of improvement in energy efficiency.

This third edition of the GTF provides an evidence-based look at progress at the regional, country, and international level toward meeting these objectives. The report provides an overview of long-term trends since 1990 and focuses on progress achieved in the most recent period, 2012–14.

So how are we doing?

Many countries are taking action, but the world as a whole is not moving fast enough.

However, it's heartening to see that progress on energy efficiency is gaining momentum, bringing us closer to the pace needed to meet 2030 objectives. The intensity of final energy consumption in industry, agriculture, services, and transport is decreasing. But improvements in the efficiency of thermal power generation and power networks have been relatively slow and the fast-growing residential sector is becoming more energy intensive. Investment in energy efficiency needs to increase by a factor of 3 to 6 from the current $250 billion a year in order to reach the 2030 objective.

On renewable energy, the GTF shows that despite advances in technology and falling prices in the electricity sector—particularly for solar and wind—the gains in the energy mix are a fraction of what is needed to meet global objectives. Those countries that have set aggressive targets for renewable energy are seeing rapid progress and need to be joined by others.

On closing the energy access gap, 1.06 billion people still live without electricity, and the number of people who still use traditional, solid fuels to cook rose slightly to 3.04 billion, indicating that efforts to advance clean cooking are not keeping up with population growth. However, the report shows that countries making energy access a policy priority can accelerate rapidly, particularly as new off-grid solar technologies start to come into play.

We hope that you will read the GTF alongside another study released in February 2017, which examines the regulatory framework for sustainable energy in 111 countries. RISE (*Regulatory Indicators for Sustainable Energy*) complements the findings in this report by putting the spotlight on the adoption of policies that support more rapid progress.

As global attention increasingly focuses on sustainable energy, providing decision-makers with timely updates of progress is more urgent than ever. Next year, the Sustainable Energy for All Global Tracking Framework will move to an annual rather than a bi-annual cycle. Decision-makers will be able to access the data in a more timely manner and implement changes needed to get us to the finish line.

It's possible to secure sustainable energy for all by 2030. But we are not on track. We must rise to the challenge agreed by the international community.

We must heed the clarion call.

We must all go further, faster—together.

Rachel Kyte
CEO for Sustainable Energy for All and Special Representative of the UN Secretary-General

PARTNERS

The development of the *Global Tracking Framework* was made possible by exceptional collaboration within a specially constituted Steering Group led jointly by the World Bank, Energy Sector Management Assistance Program, and the International Energy Agency. The membership of the Steering Group was as follows.

- Food and Agricultural Organization (FAO),
- Global Alliance for Clean Cookstoves ("the Alliance")
- Global Water Partnership (GWP)
- International Energy Agency (IEA)
- International Institute for Applied Systems Analysis (IIASA)
- International Network on Gender and Sustainable Energy (ENERGIA)
- International Partnership for Energy Efficiency Cooperation (IPEEC)
- International Renewable Energy Agency (IRENA)
- Practical Action
- Renewable Energy Policy Network for the 21st Century (REN21)
- Stockholm International Water Institute (SIWI)
- Sustainable Energy for All (SEforALL)
- United Nations Department of Economics and Social Affairs (UNDESA)
- United Nations Development Programme (UNDP)
- United Nations Economic Commission for Africa (UNECA)
- United Nations Economic Commission for Europe (UNECE)
- United Nations Economic Commission for Latin America and the Caribbean (ECLAC)
- United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
- United Nations Economic and Social Commission for Western Asia (ESCWA)
- United Nations Environment Programme (UNEP)
- Copenhagen Centre on Energy Efficiency
- UN Energy
- United Nations Foundation (UNF)
- United Nations Industrial Development Organization (UNIDO)
- UN Statistics
- UN Women
- World Bank (WB)
- World Energy Council
- World Health Organization (WHO)

The Steering Group's collaboration was made possible by agreement among the senior management of the member agencies. Riccardo Puliti (World Bank) and Fatih Birol (IEA), with Rohit Khanna (ESMAP), oversaw the development of the Global Tracking Framework in collaboration with Jane Olga Ebinger (SEforALL) and Minoru Takada (UNDP) and Ivan Vera (UNDESA). The technical team was managed by Vivien Foster (World Bank) and Dan Dorner and Hannah Daly (IEA). Alejandro Moreno (World Bank) coordinated inputs from multi-agency working groups and led the preparation of the report.

This work was largely funded by the participating agencies themselves. Financial support from ESMAP, to fund tasks managed by the World Bank, and from SEforALL, to fund tasks managed by the UN Regional Economic Commissions, is gratefully acknowledged.

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WHERE DO WE STAND ON SUSTAINABLE ENERGY FOR ALL OBJECTIVES?

Energy has been described as "the golden thread" connecting economic growth, social equity, and environmental sustainability. With this in mind, the United Nations General Assembly in 2012 embraced the Sustainable Energy for All (SEforALL) objectives for 2030, aiming to achieve universal access to modern energy, double the historic rate of improvement of energy efficiency, and double the share of renewable energy in the global energy mix. In 2015, Sustainable Development Goal 7 was adopted for 2030, to "ensure access to affordable, reliable, sustainable, and modern energy for all," building further on the three SEforALL objectives. Later in 2015, at the historic Paris Climate Conference (COP21), countries from around the world committed to Nationally Determined Contributions, many calling for progress on the sustainable energy agenda.

Preparation of this third edition of the SEforALL *Global Tracking Framework* has again been co-led by the World Bank/Energy Sector Management Assistance Program and the International Energy Agency (IEA), with valuable inputs from more than 20 organizations around the world—some longstanding partners and some joining for the first time. As in previous editions, this SEforALL *Global Tracking Framework* aims to provide the international community with a global dashboard to register progress on the three pillars of sustainable energy: energy access, energy efficiency, and renewable energy. This edition covers progress in 2012–14, collating and harmonizing official national data and providing regional and global analysis.

The findings clearly portray that the pace of progress on sustainable energy during 2012–14 fell short of what is needed to meet the global objectives by 2030. Of the three pillars of SEforALL, energy efficiency is advancing at the closest to the pace of change required to meet the 2030 objective.

Global electrification reached 85.3% in 2014, a modest improvement since 2012 and a slowdown from preceding years (figure 1). Access to clean fuels and technologies for cooking—here "clean cooking"—reached 57.4% globally in 2014, with barely any increase since 2012 (figure 2). Progress in reducing the energy intensity[1] of the global economy continued to accelerate, improving by a 2.1% compound average annual growth rate in 2012–14, compared with a SEforALL objective of –2.6%, and bringing global energy intensity to 5.5 MJ/PPP 2011 $ (megajoules per 2011 purchasing power parity dollar) (figure 3). In 2014, the share of renewable energy in total final energy consumption climbed to 18.3%, continuing the slight acceleration of trends evident since 2010 (figure 4). Even so, progress is nowhere near fast enough to double its share to 36% in 2010–30 as envisaged by the SEforALL objective.

Results of recent global energy modeling, by the IEA and others, confirm the view that current efforts will not reach the targets set by the international community for 2030, even after taking into account new policy commitments made under COP21 and favorable technology trends like the steep reduction in the costs of solar PV (photovoltaic).

The IEA's New Policies Scenario, reflecting the latest policy pledges, estimates that by 2030 access rates will stand at 91% for electricity (figure 1) and 72% for clean cooking (figure 2).[2] Improvements in energy intensity will fall short of the 2030 objective, and the share of renewable energy in total final energy consumption will reach 21% (figure 4). This coincides with recent country work by International Renewable Energy Agency (IRENA), which finds that without substantially exceeding current commitments, the world is likely to reach a renewable energy share of just 21% by 2030.

Looking at each of the dimensions of sustainable energy more closely helps in understanding why the world is not yet on track to meet its goals and what kinds of targeted efforts in which places offer the best prospects for accelerating global progress in coming years.

1. Primary energy intensity is a measurable proxy for energy efficiency that looks at the amount of energy needed to produce a dollar of economic output. Technically, energy intensity is defined as the ratio of total primary energy supply to gross domestic product (GDP, measured at purchasing power parity in 2011 U.S. dollars).
2. IEA Z-modeling excludes the use of coal and kerosene for cooking, which World Health Organization databases include.

FIGURE 1 Access to electricity

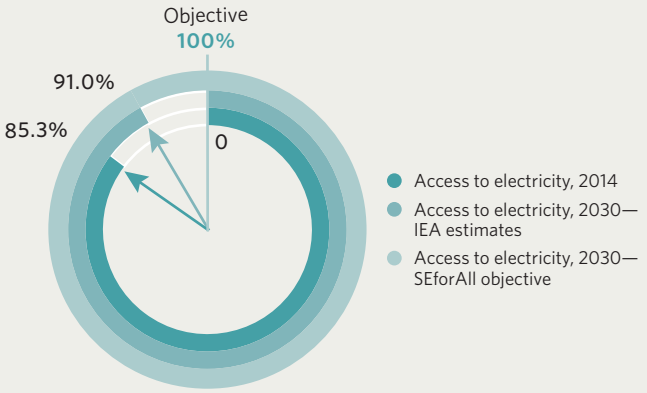


FIGURE 2 Access to clean fuels and technologies for cooking

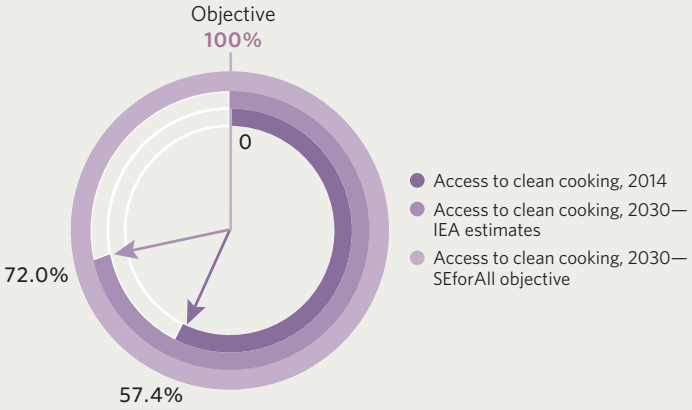


FIGURE 3 Energy efficiency

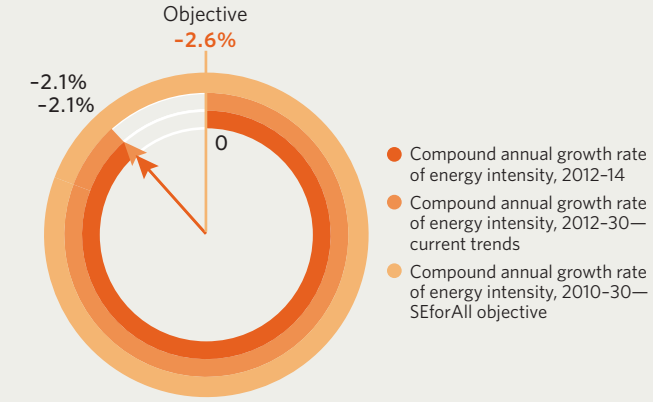
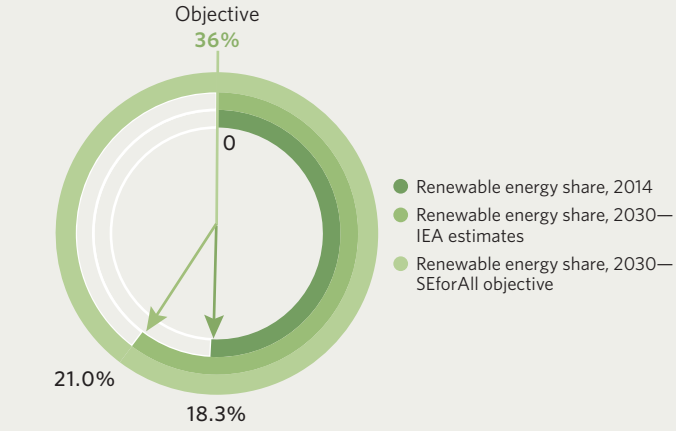


FIGURE 4 Renewable energy



ELECTRIFICATION WHERE DID WE STAND ON ELECTRIFICATION IN 2014?

Access to electricity improves lives. Lighting a single room allows a child to read or do homework at night, while charging a single telephone can bring business to a small entrepreneur. Continuous access can keep food or vaccines cold, or power a sewing machine or a school computer.

Electrification, which stands globally at 85.3%, varies widely across continents (figure 5). In Europe, North America, and Central Asia, universal access has long been a reality, and Latin America is not far behind. Both Asia-Pacific and the Arab Region are also doing well, with access rates around 90% in 2014. Yet even advanced regions have lagging countries, such as Haiti (38%) in Latin America and Sudan (45%) in the Arab Region. By far the most severe challenge is in Africa (excluding North Africa), with access for only 37% of its population in 2014.

It is notable that electrification rates rise very steeply as countries move through the income bracket of $500–1,000 per capita GDP (figure 6).

Access to electricity has progressed steadily since 1990. Urban areas across the world already have close to universal access at 96%, although challenges remain in the rapidly growing cities of Africa and Asia-Pacific (figure 7). Although urban access rates have increased relatively little in the last 25 years, even sustaining those rates represents a major achievement given the rapid urbanization that has added 1.6 billion people to the world's cities during this period. Progress in rural electrification has been more evident since 1990, reaching 73% of the population in 2014, narrowing the gap in access between urban and rural populations to 20 percentage points, from 35 in 1990.

In 2014, 1.06 billion people—about three times the population of the United States—still lived without access to electricity, only a very slight improvement over 2012 (figure 8). The vast majority of those without access lived in rural areas—particularly rural Africa—where the race against demographic growth is largely being lost.

This does not reflect a lack of effort by countries: some 86 million people, equivalent to the entire population of Egypt, are newly getting electricity annually. But the global population is expanding at almost the same pace (figure 9).

About 80% of the 1.06 billion people without electricity live in just 20 countries. Their progress toward electrification—or lack thereof—will have the greatest impact on global outcomes. Particularly troubling is that two of these high-impact countries, Angola and the Democratic Republic of Congo, saw their electrification rates fall by about 1 percentage point annually in 2012–14 (figure 10). More encouraging is the rapid progress in 2012–14 of a number of populous low-access countries—such as Kenya, Malawi, Sudan, Uganda, and Zambia—that increased their electrification rates by 2 to 3 percentage points annually. Results for India are inconclusive because no new household survey data on electrification have been published since 2012.

Until 1990, it was rare for countries to expand electrification faster than 2 to 3 percentage points annually. However, in 2012–14 one of the strongest performers in Africa—Rwanda—added more than 3 percentage points to its electrification rate annually, reflecting a strong policy commitment. In Asia-Pacific, Afghanistan made extraordinary progress, adding electrification for 10 percentage points of the population annually, thanks largely to off-grid rural electrification based on solar PV. Cambodia expanded by more than 7 percentage points annually through sustained grid electrification complemented by solar home systems in rural areas.

FIGURE 5 **Access to electricity, 2014**

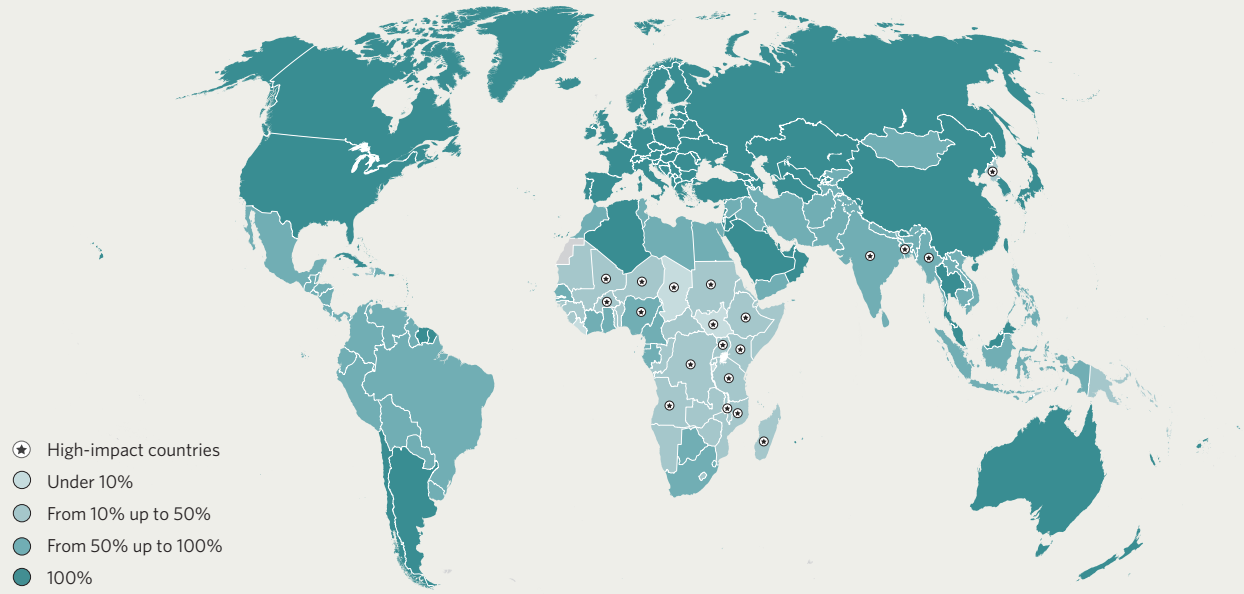


FIGURE 6 Regional differences in access to electricity, 2014

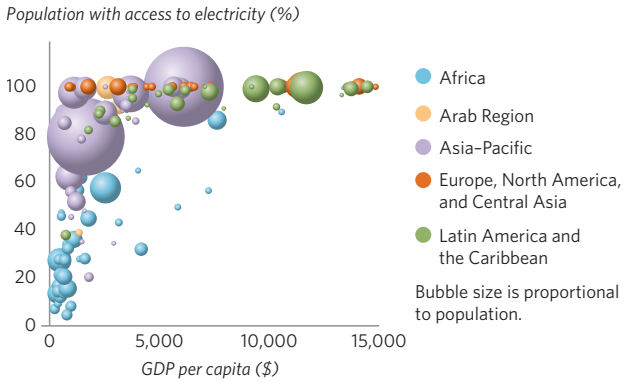


FIGURE 7 Urban-rural differences in access to electricity, 2014

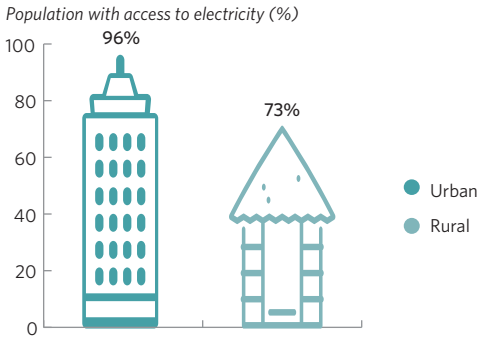


FIGURE 8 Location of the 1.06 billion people living without electricity, 2014

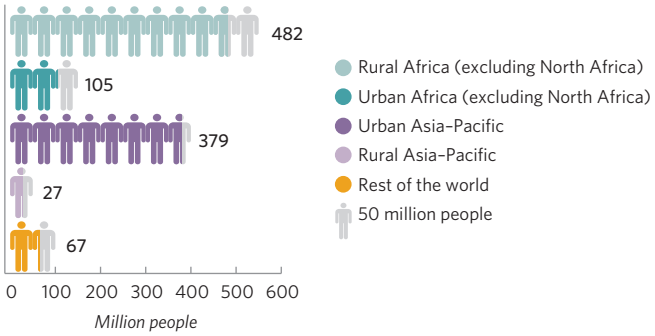


FIGURE 9 Demographic challenges for electrification

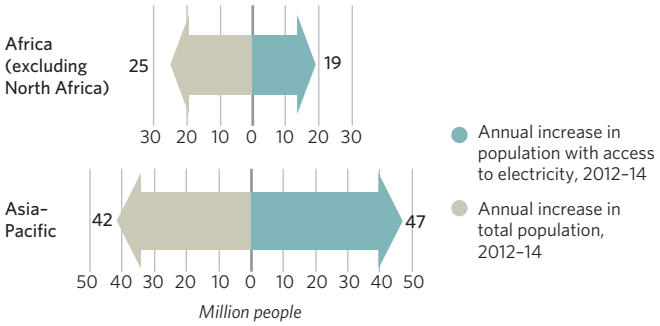
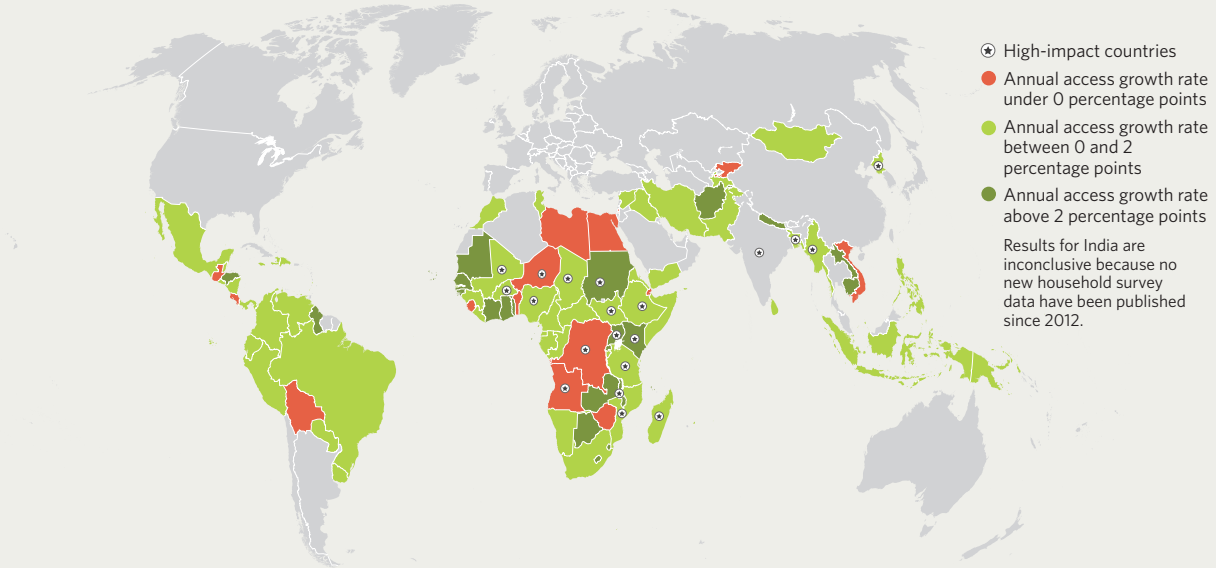


FIGURE 10 Speed of progress toward electrification goal, 2012–14



COOKING WHERE DID WE STAND ON ACCESS TO CLEAN COOKING IN 2014?

The fuels and technologies households use for cooking have become a major global health issue. Some 4 million premature deaths, primarily among women and children, are caused each year by inhaling carbon monoxide and particulate matter from traditional biomass cookstoves. Reducing exposure to these health risks calls for either switching to clean fuels, typically liquefied petroleum gas, or adopting advanced combustion cookstoves that burn biomass more cleanly and efficiently.

Across all continents, access to clean fuels and technologies for cooking—here "clean cooking"—tends to lag behind electrification (figure 11). In regions approaching universal access to clean cooking, such as Europe, North America, and Central Asia, Latin America, and the Arab Region, that gap is just a couple of percentage points, but for Asia-Pacific and Africa it can be very large. In Asia-Pacific, only 51% had access to clean cooking in 2014 compared with 90% for electricity, and in Africa (excluding North Africa) only 12% compared with 37% for electricity. Although many countries experience a rapid scale-up of electrification in the $500–1,000 per capita income bracket, access to clean cooking typically takes much longer, all the way to income levels of $12,000 per capita (figure 12).

Reflecting these dynamics, access to clean cooking has progressed at a consistently slow rate since 1990, edging up by just half a percentage point of global population each year, to reach 57% in 2014. Even in urban areas, only 78% of the population had access (figure 13). This raises a serious concern, given the poor air quality and fire hazards associated with using traditional biomass cookstoves in crowded urban settings. In rural areas, only 22% of the population had access to clean cooking. Biomass is often freely available in the countryside, while distribution channels for modern fuels or advanced cookstoves may be nonexistent. This puts the urban-rural gap for clean cooking at close to 60 percentage points—three times the gap for electricity.

In 2014, 3.04 billion people—about nine times the population of the United States—lived without access to clean cooking, a slight increase in the deficit since 2012 (figure 14). This increase is driven by Africa, where population expands by 25 million annually while access to clean cooking increases by only 4 million (figure 15).

Some 85% of the 3.04 billion people without access to clean cooking live in just 20 countries. Their lack of progress toward clean cooking is a large contributor to lackluster global performance (figure 16). Among them, Afghanistan and Nigeria stand out as populous countries whose access to clean cooking fell by about 1 percentage point annually in 2012–14. At the other end of the spectrum, Indonesia made by far the greatest progress, raising its access rate by more than 4 percentage points annually during this period. Other strong performers among the larger countries are Viet Nam, which added almost 2 percentage points annually, and Sudan, which added more than 1. Particularly noteworthy were a handful of smaller countries that raised access to clean cooking by more than 4 percentage points annually, including Angola, Bhutan, Maldives, and Peru.

Overall about 25 countries worldwide expanded access to clean cooking by more than 2 percentage points annually, or at least four times faster than the world. A majority of these—though by no means all—were also natural gas producers, suggesting that the domestic availability of gas can be an advantage. This group's achievement shows that faster progress may be possible in the future, as long as the issue is given a higher priority on the policymaking agenda.

FIGURE 11 Access to clean cooking, 2014

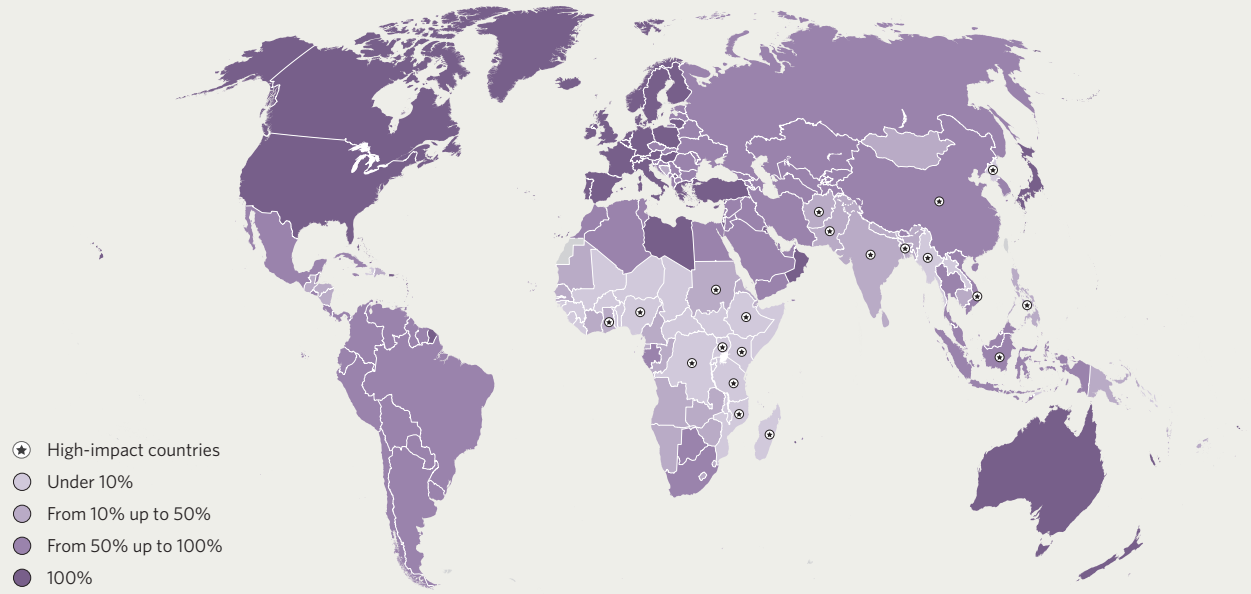


FIGURE 12 Regional differences in access to clean cooking, 2014

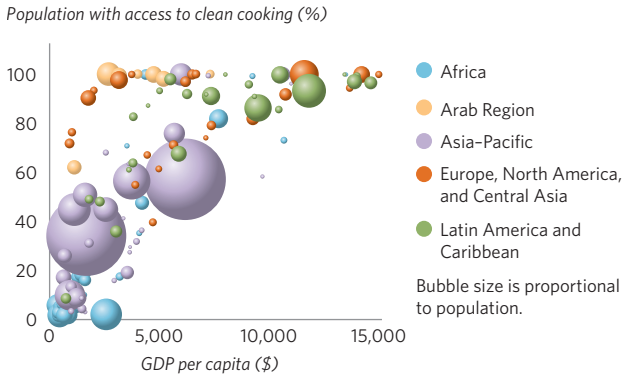


FIGURE 13 Urban–rural differences in access to clean cooking, 2014

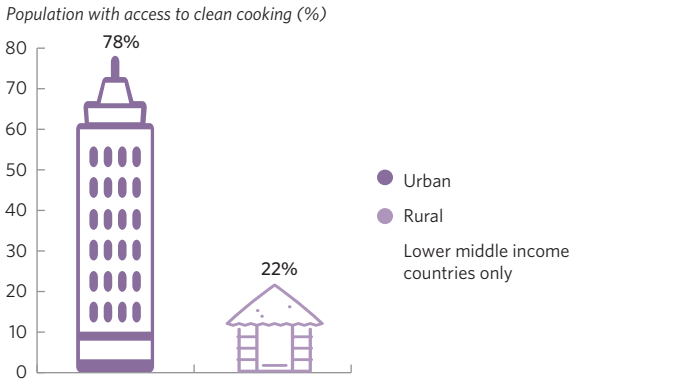


FIGURE 14 Location of the 3.04 billion people living without access to clean cooking, 2014

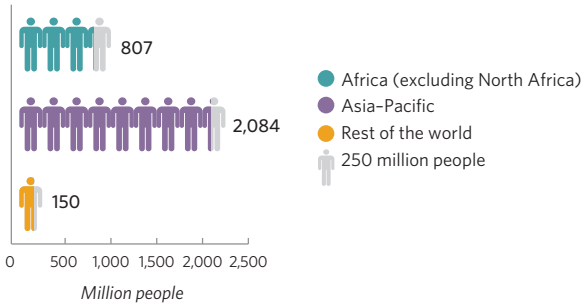


FIGURE 15 Demographic challenges for progress on access to clean cooking

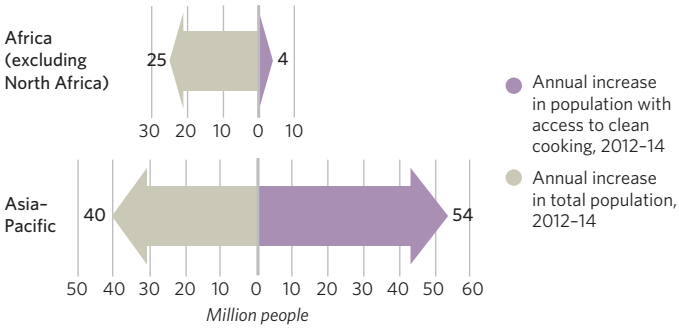
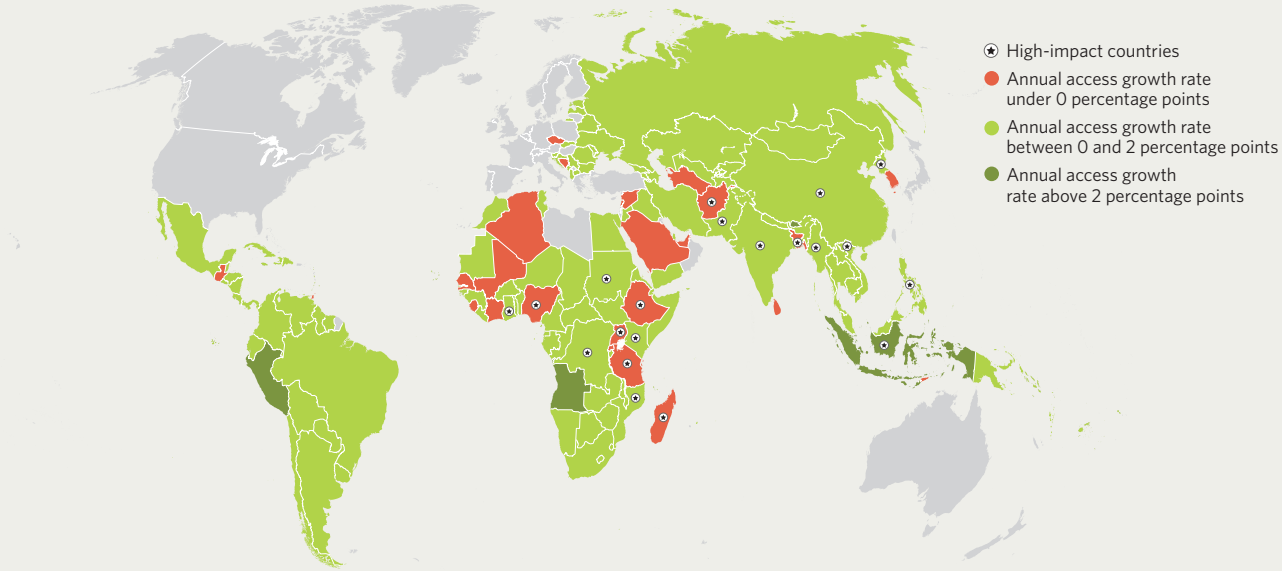


FIGURE 16 Speed of progress toward clean cooking goal, 2012–14



ENERGY EFFICIENCY WHERE DID WE STAND ON ENERGY INTENSITY IN 2014?

Reducing energy intensity—the measurable proxy for increasing energy efficiency—means getting more economic value out of every unit of energy consumed. This helps to dampen demand for energy, reduce the environmental footprint associated with its production, improve the competitiveness of industry, and increase the affordability of energy to households (figure 17). As energy intensity comes down, GDP can grow with much lower growth in energy demand (figure 19). This effect is already evident in much of the developing world except for Latin America and Caribbean and the Arab Region, while in Europe and North America GDP continues to grow while energy demand is flat or falling.

Primary energy intensity has been falling significantly since the beginning of the data series in 1990, and it has been converging across geographic regions toward the current global average of 5.5 MJ/2011 PPP $ in 2014 (figure 18). Low-income countries have by far the highest energy intensity due to reliance on inefficient traditional biomass. By contrast, some high-income countries in Europe—Denmark, Italy, and the United Kingdom—are already reporting energy intensities below 3.4 MJ/2011 PPP $, the global energy intensity if the world target for 2030 is met Globally, recent improvements in energy intensity in 2012–14 really add up, presenting energy savings equivalent to the entire energy consumption of both Brazil and Pakistan in 2014.

Driving progress on energy intensity are actions in key energy consuming sectors and, to much less extent, in key energy supply sectors. The major energy consuming sectors are industry, residential, and transport. Industry has contributed much to declining global energy intensity, with an annual reduction of 2.2% in 2012–14, but the residential sector had a small increase in energy intensity (measured in energy consumption per capita) (figure 20). In transport, widespread diffusion of fuel efficiency standards helped accelerate reductions in energy intensity (measured in energy consumption per person-km or ton-km), with passenger transport progressing at 2.8% a year, compared with just 1.1% a year for freight transport. The strongest improvements have been in passenger buses (4.8% a year since 2010) and sea freight (3.7%).

The electricity supply industry is itself a major consumer of energy, in part due to losses both in thermal generation and in the transmission and distribution network. The average efficiency of thermal generation has been edging up very slowly since 1990 to reach 39% in 2014. But average efficiency rates of 45% are already being achieved for natural gas electricity plants. Network losses were coming down very slowly, to 9% in 2014, but with wide variation between high-income countries (at 7%) and low-income countries (at 16%) (figure 21).

About three-quarters of the world's energy supply is concentrated in just 20 countries, mainly high-income and upper-middle-income (figure 22). How rapidly these countries reduce their energy intensity has a major impact on the global outcome. Not only did 15 of these high energy consumers reduce their energy intensity in 2012–14, but 7 of them reduced it by more than 2.6% annually: Australia, China, Italy, Mexico, Nigeria, the Russian Federation, and the United Kingdom. Even so, 5 countries also saw their energy intensity increase in 2012–14 (Brazil, Iran, Saudi Arabia, South Africa, and Thailand), while 5 still have energy intensities significantly above the global average (Canada, China, Iran, the Russian Federation, and South Africa). And the recent experience of some smaller countries shows that it is sometimes possible to improve energy intensity by more than 5% annually, at least for short periods.

FIGURE 17 Primary energy intensity, 2014

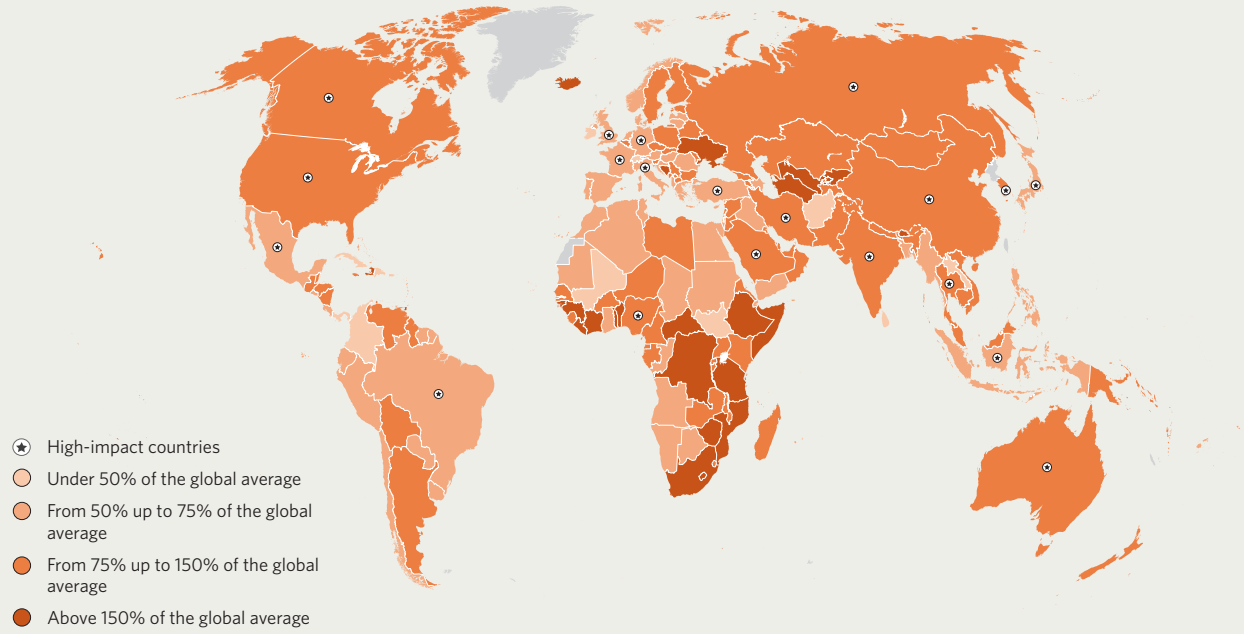


FIGURE 18 Regional differences in primary energy intensity, 2014

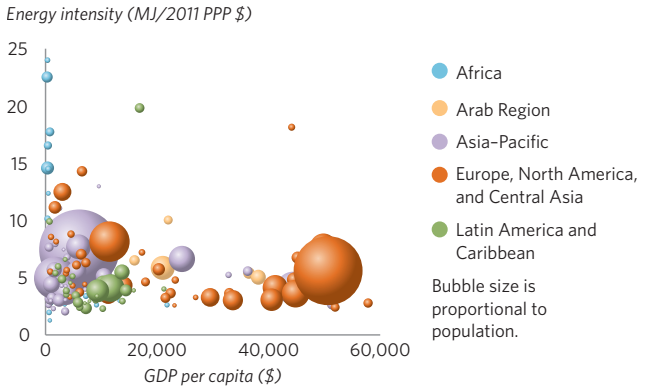


FIGURE 19 Relative growth of GDP and energy supply, 1990–2014

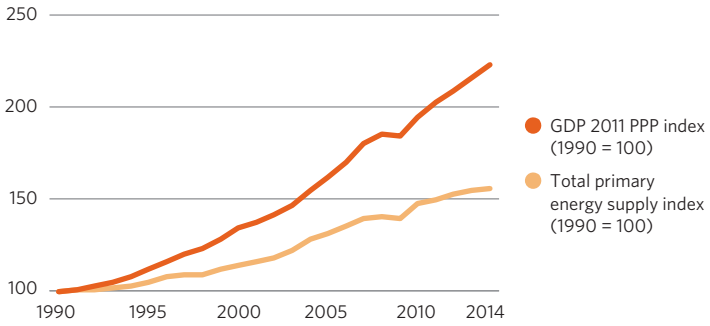


FIGURE 20 Relative improvement in final energy intensity by end-use sectors, 2012–14

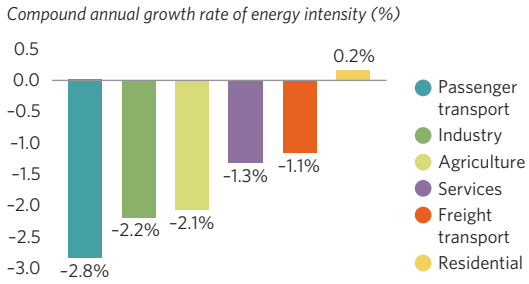


FIGURE 21 Income group differences in supply-side efficiency, 2014

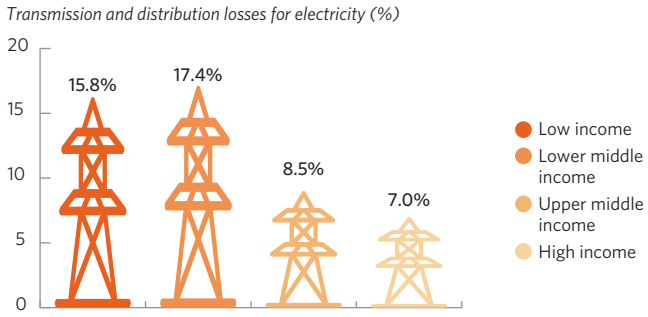
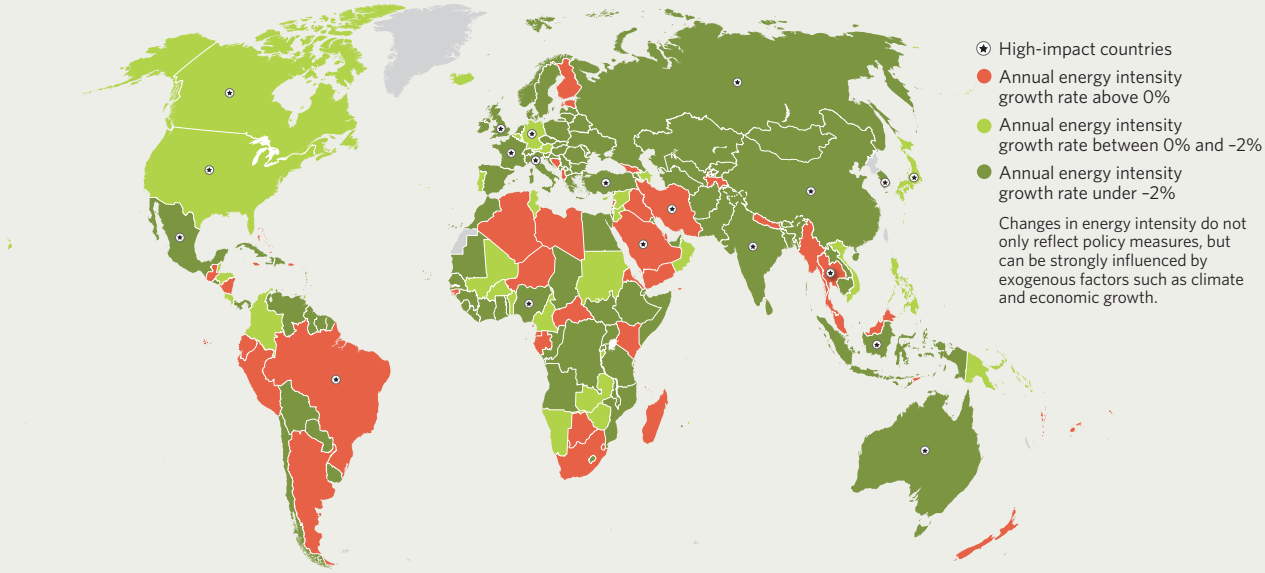


FIGURE 22 Speed of progress toward goal of reducing primary energy intensity, 2012–14



RENEWABLE ENERGY WHERE DID WE STAND ON RENEWABLE ENERGY IN 2014?

Renewable energy shares vary widely around the world (figures 23 and 24). Despite significant growth in renewable energy consumption, continued rapid growth in total final energy consumption has meant that the overall share of renewable energy has been moving more slowly (figure 25).

The narrative for renewable energy is complex because it interweaves two distinct stories. The first relates to the traditional uses of biomass—minimally processed wood, charcoal, dung, or agricultural waste—which is still in widespread use for cooking and heating across the developing world. While biomass is technically renewable, its traditional uses are responsible for serious health effects and, sometimes, deforestation. So reduced dependence on traditional biomass is considered desirable even though it reduces the share of renewable energy overall.

Developing regions, due to their continuing reliance on traditional uses of biomass, show particularly high renewable energy shares, most notably in Africa (excluding North Africa) at 70%, and South-East Asia and South and South-West Asia at around 30%. But these shares are steadily falling as incomes rise, economies modernize, and households and small enterprises switch to modern fuels (figure 24).

The second story relates to modern renewable energy, which includes processed wood fuels, biofuels for transportation, and renewable power generation technologies (figure 27). In Latin America and Caribbean, the share of modern renewable energy has long been high at 23%, reflecting early use of abundant biomass and hydropower resources. In 1990, all other regions were achieving only 5% of their total final energy consumption through modern renewable energy sources. But Asia-Pacific, Europe, and North America have seen strong growth, reaching around the 10% mark in 2014 (figure 24). The major exceptions are the Arab Region and Eastern Europe, Caucasus, and Central Asia. Uptake has been largely policy-driven as more and more countries, particularly at higher incomes, adopt renewable energy targets and incentives.

The story of the advance of renewable energy differs greatly for the three main end-use sectors: electricity, transport, and heat. Electricity and transport represented relatively small shares of total renewable energy consumption in 2012, at 23% and 4% respectively (figure 26). But the penetration of renewable energy in these applications has been growing relatively rapidly. Electricity contributed 49% of the progress in renewable energy in 2012–14 thanks to the steep growth of wind and solar power, while transport contributed 9% of progress in 2012–14 thanks to continued uptake of biofuels. More problematic is the heat sector, which accounted for the bulk of renewable energy consumption, 73% in 2012, but contributed only 42% of progress in 2012–14, reflecting less policy focus as well as greater technological challenges in applying renewable energy to high temperature industrial processes.

How rapidly the world's 20 largest energy consumers are able to meet demand with modern renewables will have a major impact on global outcomes. Just 13 of the large consumers succeeded in increasing their modern renewable energy share in 2012–14 (figure 28). In fact, three of these large consumers saw a significant decline in their modern renewable energy share: particularly Nigeria, and to a lesser extent Brazil and Turkey, where hydropower production suffered due to low rainfall. Worldwide, only a handful of smaller countries managed to grow their renewable energy share by more than two percentage points, indicating the challenging nature of this target.

FIGURE 23 Share of renewable energy in total final energy consumption, 2014

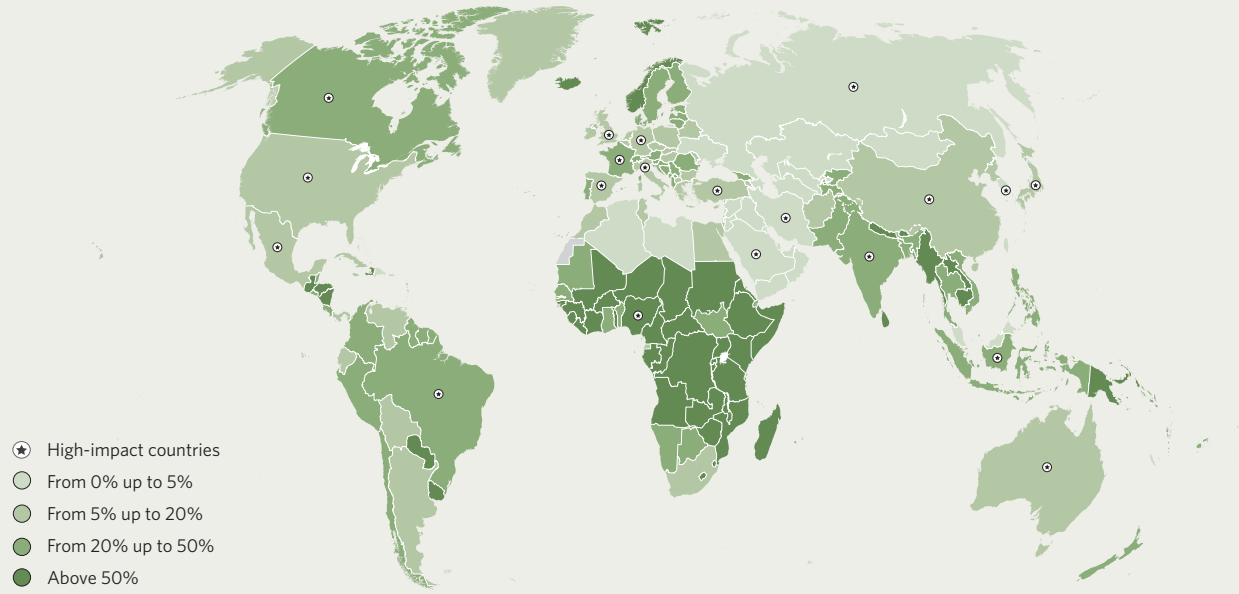


FIGURE 24 Regional differences in renewable energy share, 2014

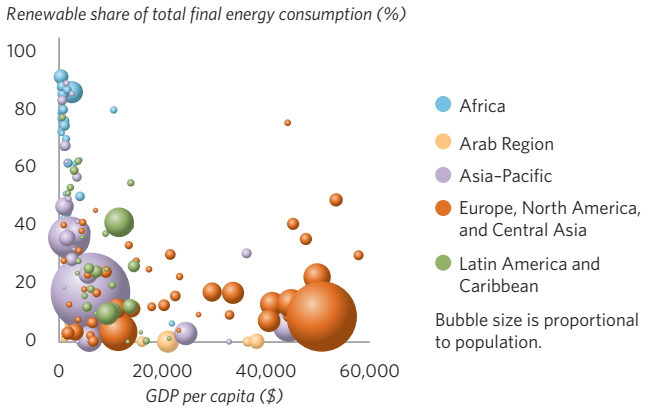


FIGURE 25 Relative growth of renewable and total energy consumption, 1990–2014

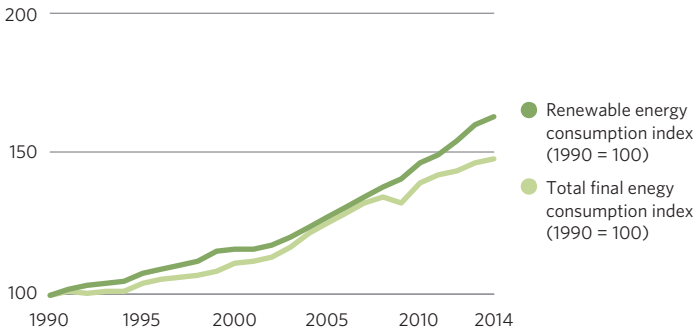


FIGURE 26 Sectoral contribution to renewable energy growth, 2012–14

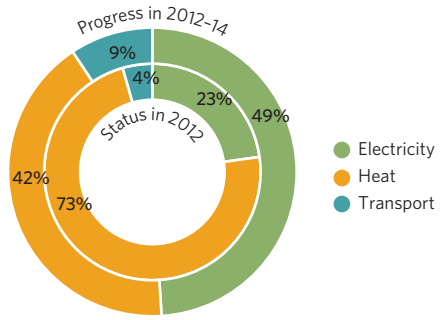


FIGURE 27 Technology differences in renewable energy share, 2014

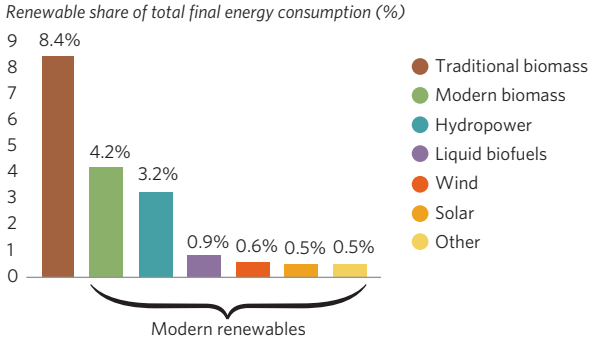
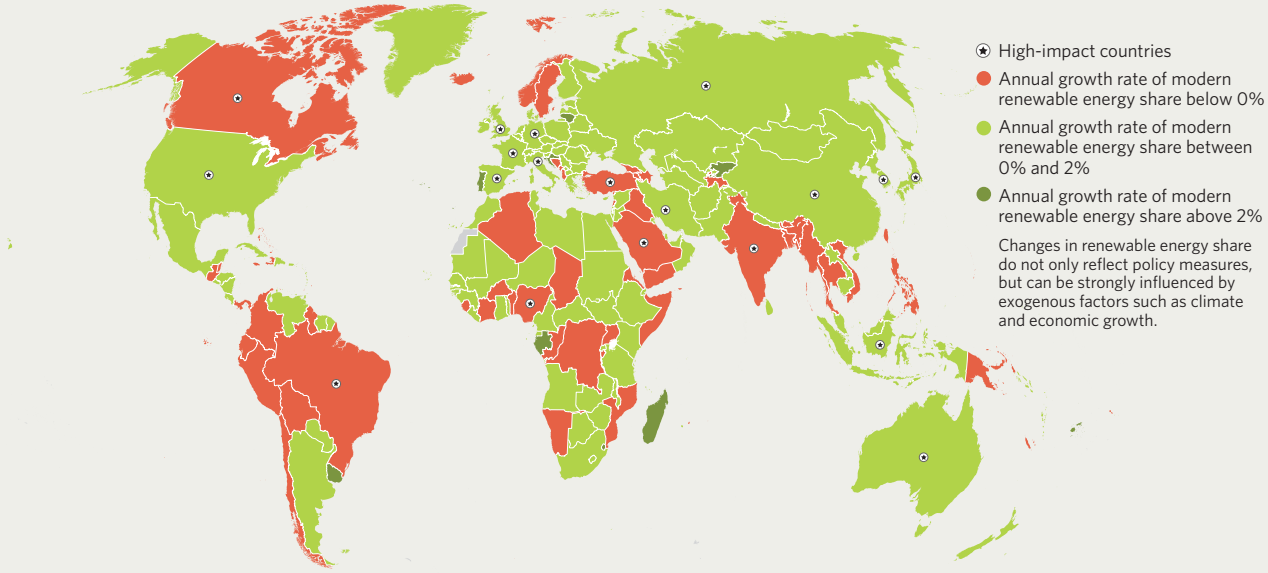


FIGURE 28 Speed of progress toward renewable energy goal, 2012–14



CONCLUSION

The overall progress toward sustainable energy in 2012–14 was not commensurate with the SEforALL goals. Modeling projections indicate that the 2030 objectives are unlikely to be met on current trends or even on the basis of recently enhanced policy commitments.

Much more encouraging than the global trends, however, are the experiences of individual countries demonstrating the feasibility of moving faster toward sustainable energy objectives. In just about every area of sustainable energy, significant numbers of countries are outperforming the world. Equally useful, the findings point to countries and sectors that are not doing so well, where greater policy attention could produce significant payoffs.

On electrification, while Africa is not expanding access as rapidly as its population is growing, Kenya, Malawi, Sudan, Uganda, Zambia, and particularly Rwanda are accelerating at a pace that looks rapid relative to the pace observed around the world since 1990. Moreover, the recent experience of some Asian countries such as Afghanistan and Cambodia making more determined use of off-grid solar energy provides an early indication that new technologies may make it possible to expand electrification much faster than was previously thought.

A particular focus on electrification is needed in low-access countries where growth in population outstrips progress in electrification, so that electrification rates actually decline. Benin and Zimbabwe stand out in the 2012–14 assessment.

On clean cooking, some 20 countries were able to progress at four times the modest pace of the world. Indonesia stands out as by far the fastest moving country, with Angola, Bhutan, Maldives, and Peru also advancing rapidly. The main concern about clean cooking is that it often seems to be given lower priority than other parts of the energy agenda. In particular, Afghanistan and Nigeria stand out in the 2012–14 assessment as two populous countries where access to clean cooking is in decline.

On energy efficiency, the strong improvement in industrial energy intensity is particularly encouraging, as are improvements in the fuel efficiency of passenger road transport and aviation and a trend toward larger freight ships. Moreover, some of the largest energy consumers that already have low energy intensities, such as Italy and the United Kingdom, continue to make further progress.

A key area of focus for energy efficiency is the residential sector, a large and fast-growing segment of energy consumption, especially in developing countries. Another challenge is the electricity supply industry, where improvements in the efficiency of thermal power generation and power networks have been relatively slow. Among countries, some of the largest energy consumers remain very energy intensive, and a couple of them—the Islamic Republic of Iran and South Africa—even saw their intensities increase in 2012–14.

On renewable energy, the rapid expansion of wind and solar generation for electricity is a well-known positive story. The problem is that electricity represents only 20% of energy consumption. Without an equivalent breakthrough for renewable heat technologies and a continuing acceleration of progress in renewable transport, it will be difficult to accelerate the ramp-up of renewable energy as a whole.

What is striking about renewable energy, compared with other dimensions of sustainable energy, is the relatively small number of countries managing to progress as rapidly as the world as a whole would need to move to meet its target for 2030. Only two of the large energy consumers—again, Italy and the United Kingdom—increased their renewable energy share by more than 1 percentage point annually in 2012–14.

Further improvement on these steady, but still inadequate, levels of progress in the years to 2030 will require greater financing flows and bolder policy commitments, as well as the willingness to embrace new technologies on a much wider scale. Investments in renewable energy and energy efficiency globally have each climbed to an estimated $250 billion a year. But to meet the SEforALL objectives, renewable energy investment would need to increase by a factor of 2 to 3, and energy efficiency investment by a factor of 3 to 6. Investments in energy access are less well understood, but estimates suggest that a fivefold increase would be needed to reach universal access by 2030.

On the policy environment, the 2016 publication of *Regulatory Indicators for Sustainable Energy* maps out the adoption of good practice policies for energy access, energy efficiency, and renewable energy around the world. That report helps to identify where good policies have already been adopted and points to helpful measures that may have been neglected. For example, it shows that many low-access African countries have yet to create a supportive policy environment for energy access, particular for off-grid solar home systems. More broadly, energy efficiency policies are being systematically neglected by policymakers, who have not yet taken many simple regulatory measures. While targets and incentives for renewable electricity have swept across the globe, major challenges remain in regulating the full integration of renewable resources into the grid.

Last, understanding and learning from the evolution and implementation of sustainable energy policies globally requires improved data. All the indicators presented here have conceptual shortcomings, and many are prejudiced by infrequent or incomplete data collection. Capacity building for improved data collection and curation remains a pressing need in many developing countries. Work to develop improved indicators is also critical—to capture the affordability and reliability of energy access, provide a more accurate understanding of traditional uses of biomass, and drill down into the energy efficiency of key economic sectors. Some efforts are already under way, but more needs to be done.

DATA ANNEX

1 ACCESS TO ELECTRICITY AND CLEAN COOKING

	Access to electricity (% of population[a])							Access to clean fuels and technologies for cooking[c] (% of population)			
			Total			Urban[b]	Rural	Total			
	1990	2000	2010	2012	2014	2014	2014	2000	2010	2012	2014[c]
Afghanistan			43[d]	69[d]	90[d]	99[d]	88[d]	23	19	18	17
Albania	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	48	62	64	67
Algeria			100	100	100	100	100	93	100	100	100
American Samoa											
Andorra	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Angola			35	34	32[f]	51[f]	3[f]	18	39	44	48
Anguilla		96	100	100	100						
Antigua and Barbuda				95	96	85	100[e]	94	100	100	100
Argentina			99[g]	100	100			92	98	99	100
Armenia		99[g]	100[g]	100	100	100	100	80	97	99	100
Aruba		92[g]	93	94	94	87	100[e]				
Australia	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Austria	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Azerbaijan		98	100	100	100	100	100	71	90	93	97
Bahamas			100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Bahrain			100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Bangladesh		32[h]	55[h]	59	62[h]	91[h]	51[h]	11	10	10	10
Barbados		100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	87	98	100	100
Belarus	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	92	99	100	100
Belgium	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Belize			90[g]	91	92	100	86	80	85	86	87
Benin		21	34[i]	38[i]	34[i]	58	16	2	5	6	7
Bermuda	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
BES Islands											
Bhutan			82	92[g]	100	100	96	38	60	64	68
Bolivia (Plurinational State of)		70[j]	84	90[j]	90[j]	99[j]	71[j]	64	75	77	79
Bosnia and Herzegovina			100[e]	100[e]	100[e]	100[e]	100[e]	51	43	41	40
Botswana		27	48	52	56	71	38	46	58	60	63
Brazil	87[j]	94	99	100[j]	100[j]	100[j]	98[j]	86	91	92	93
British Virgin Islands	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Brunei Darussalam	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Bulgaria	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	69	76	78	79
Burkina Faso		9	13[h]	16	19[h]	58[h]	3[h]	3	6	6	7
Burundi		4	5[k]	7[k]	7[k]	52[k]	2[k]	2	2	2	2
Cabo Verde			81[g]	85	90	96	79	58	67	69	71
Cambodia		17[h]	31[h]	41	56[h]	97[h]	49[h]	5	11	12	13
Cameroon		41[i]	53	55	57[i]	87	22	14	17	17	18
Canada	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Cayman Islands	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Central African Republic		6[g]	10[g]	11	12	26	3	2	2	2	2
Chad		3	6[g]	7	8	20	5	2	3	3	4
Chile	92[g]	98[g]	100	100	100	100	100	86	94	95	97
China			100[g]	100	100	100	100	46	54	56	57
Chinese Taipei											
Colombia	90[j]	95[j]	97[j]	97[j]	98[j]	100[j]	90[j]	77	87	89	91
Comoros		39	64	69[g]	74	96	65	2	5	6	7
Congo (Dem. Rep. of)		7[h]	13	15[h]	14[h]	42[h]	0[h]	2	5	5	6
Congo (Rep. of)			39	42[g]	43	61	10	11	16	17	18
Cook Islands			99	100	100	100	100	83	81	81	80
Costa Rica			99[j]	100[j]	99[j]	100[j]	98[j]	87	93	95	96
Côte d'Ivoire		48	58	56[f]	62[f]	84	37	18	19	19	18
Croatia	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	84	92	93	94
Cuba		97[g]	100	100	100	100	98	69	82	85	87
Curacao	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Cyprus	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Czech Republic	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	94	100	100	100
Denmark	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Djibouti		57	49	48	47	57	10	2	7	9	10
Dominica		81	95	98	100			81	89	90	92
Dominican Republic		89[j]	98[j]	98[j]	98[j]	100[j]	96[j]	81	89	90	92
Ecuador		93	97[j]	97[j]	99[j]	100[j]	97[j]	87	95	97	98
Egypt		98[h]	100	100	100[h]	100[h]	100[h]	88	99	100	100
El Salvador		85[j]	92[j]	94[j]	95[j]	98[j]	90[j]	60	76	80	83
Equatorial Guinea				66	68	100	45	14	19	20	22
Eritrea		29	41	43	46	100	7	4	11	12	14
Estonia	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	82	89	90	92
Ethiopia		13[l]	22	24	27[l]	92[l]	12[l]	3	2	2	2
Faeroe Islands	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				

	Access to electricity (% of population[a])							Access to clean fuels and technologies for cooking[c] (% of population)			
	Total					Urban[b]	Rural	Total			
	1990	2000	2010	2012	2014	2014	2014	2000	2010	2012	2014[c]
Falkland Islands (Malvinas)											
Fiji		75	94	98	100	100	76	31	35	36	37
Finland	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
France	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
French Guiana											
French Polynesia	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Gabon		74[g]	85	89[g]	89	97	42	53	68	70	73
Gambia		34[g]	42	45	47	71	13	3	4	4	4
Georgia			100	100[m]	100[m]	100[m]	100[m]	51	54	55	55
Germany	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Ghana		45	65	69	78[h]	91[h]	63[h]	6	17	19	21
Gibraltar	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Greece	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Greenland	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Grenada				90	91			91	98	100	100
Guadeloupe											
Guam		100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Guatemala		73[j]	84	87	85[j]	94[j]	75[j]	40	37	37	36
Guinea		17	24	26[g]	28	69	4	2	5	5	6
Guinea-Bissau			6[i]	12	17[i]	33[i]	4[i]	2	2	3	3
Guyana		76	81	83	87[i]	94[i]	84[i]	45	57	59	61
Haiti		34[g]	36	38[g]	38	53	17	6	8	8	9
Honduras		68	81[j]	84[j]	89[j]	99[j]	76[j]	35	45	46	48
Hong Kong (SAR, China)	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Hungary	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Iceland	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
India		60	76	80[g]	79	98	70	24	32	33	34
Indonesia		86[n]	94[n]	96[n]	97[n]	100[n]	94[n]	2	40	48	57
Iran (Islamic Rep. of)		98[g]	99	99	99	100	95	89	98	99	100
Iraq			98	98	99	100	96	83	94	96	98
Ireland	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Isle of Man	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Israel	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Italy	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Jamaica	70[g]	85	93	95	97	95	100	72	87	90	93
Japan	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Jordan	97[g]	99	100	100[g]	100	100	100	96	100	100	100
Kazakhstan		99	100	100	100	100	100	83	89	91	92
Kenya		16	19[h]	27	36[h]	68[h]	13[h]	3	5	6	6
Kiribati			63[g]	52	48	81	22	6	4	4	3
Korea (Dem. People's Rep. of)			28	30	32			3	6	6	7
Korea (Rep. of)		100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Kosovo			99[g]	100[e]	100[e]	100[e]	100[e]				
Kuwait	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Kyrgyzstan		100	99[j]	100[j]	100[j]	100[j]	100[j]	61	72	74	76
Lao PDR		43	68	73	78	95	68	2	4	4	5
Latvia	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	87	95	96	97
Lebanon			100	100	100	100	100	95	100	100	100
Lesotho			19	23	28[h]	62[h]	12[h]	19	28	30	32
Liberia			5	7	9	17	2	2	2	2	2
Libya		100[g]	99	99	98	100	92				
Liechtenstein	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Lithuania	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Luxembourg	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Macao (SAR, China)		100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Macedonia (The former Yugoslav Rep. of)			100[e]	100[e]	100[e]	100[e]	100[e]	60	61	61	61
Madagascar		13	16	16	17	29	11	2	2	2	2
Malawi		5[h]	9[h]	7[h]	12[h]	46[h]	5[h]	2	3	3	3
Malaysia			99	100[g]	100	100	100	93	100	100	100
Maldives		84[f]	97	99	100[f]	100[f]	100[f]	41	87	95	99
Mali		10	22	26[g]	27	51	12	3	2	2	2
Malta	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Marshall Islands		68	84	87	90	94	81	32	39	40	41
Martinique											
Mauritania			32	35	39[o]	77[o]	2[o]	31	41	43	45
Mauritius		99[g]	99	99	99	100	79	90	97	98	99
Mayotte											
Mexico		98[j]	99[j]	99[j]	99[j]	100[j]	98[j]	82	85	86	86

	Access to electricity (% of population[a])							Access to clean fuels and technologies for cooking[c] (% of population)			
			Total			Urban[b]	Rural	Total			
	1990	2000	2010	2012	2014	2014	2014	2000	2010	2012	2014[c]
Micronesia (Federated States of)		46[g]	65[g]	68	72	57	76	15	22	24	25
Moldova (Rep. of)			100[e]	100[e]	100[e]	100[e]	100[e]	83	91	92	93
Monaco	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Mongolia		67[g]	82	84	86	100	51	27	31	31	32
Montenegro	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	65	72	73	74
Montserrat											
Morocco		67	86	90	92[f]	95[f]	85[f]	90	97	98	99
Mozambique		7	17	19	21	54	6	2	4	4	4
Myanmar			49[f]	51	52[f]	86[f]	49[f]	4	8	8	9
Namibia		37[g]	45	48	50	83	21	34	43	44	46
Nauru			99	99	99			76	91	93	96
Nepal		27	67	76	85[i]	98[i]	82[i]	7	21	23	26
Netherlands	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
New Caledonia		100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
New Zealand	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Nicaragua		73	78	79	82[j]	98[j]	57[j]	35	45	47	49
Niger		8	12	14[g]	14	53	5	2	2	3	3
Nigeria	27[g]	43	48[g]	55	58	78	39	13	5	4	2
Niue											
Northern Mariana Islands		100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Norway[p]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Oman			100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Pakistan		75	91	94	98	100	96	24	39	42	45
Palau			99	98[q]	100[q]	100[q]	99[q]	55	57	58	58
Palestine (State of)		100[i]	100[i]	99	100[i]	100[i]	100[i]				
Panama	70[g]	81[g]	87[g]	90	92	100	66	81	84	85	86
Papua New Guinea		12	20[g]	19	20	76	12	13	26	29	31
Paraguay		89	97[j]	98[j]	99[j]	100[j]	98[j]	41	57	61	64
Peru		72[j]	88[j]	91[j]	93[j]	99[j]	75[j]	38	59	63	68
Philippines		74	85	87	89	97	83	39	43	44	45
Poland	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Portugal	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Puerto Rico			100[e]	100[e]	100[e]	100[e]	100[e]				
Qatar	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	90	99	100	100
Reunion											
Romania	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	72	79	81	82
Russian Federation	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	92	99	100	100
Rwanda		6[r]	10[r]	13	20[r]	72[r]	9[r]	2	2	2	2
Saint Barthelemy											
Saint Helena											
Saint Kitts and Nevis			98	99	100[e]	100[e]	100[e]	100	100	100	100
Saint Lucia			96	97	98	100	97	82	96	99	100
Saint Martin (French part)	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Saint Pierre and Miquelon											
Saint Vincent and the Grenadines		80	93	96	99	100	95	91	99	100	100
Samoa		87	96	98	98[h]	99[h]	98[h]	25	27	27	27
San Marino	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Sao Tome and Principe		53[i]	60	58[i]	69[i]	76[i]	55[i]	18	27	29	30
Saudi Arabia			100[e]	100[e]	100[e]	100[e]	100[e]	98	100	100	100
Senegal		37	53	57	61[h]	85[h]	33[h]	39	37	36	36
Serbia			100	100[e]	100[e]	100[e]	100[e]	63	69	70	71
Seychelles		94	97[g]	99	100[e]	100[e]	99	76	96	99	100
Sierra Leone			14	14	13	32	1	3	2	2	2
Singapore	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Sint Maarten (Dutch part)	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Slovak Republic	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	93	100	100	100
Slovenia	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	88	95	97	98
Solomon Islands		10	28	31	35	39	34	7	8	9	9
Somalia			15	17	19	31	11	2	6	8	9
South Africa		71	83[s]	85[s]	86[s]	94	71	56	75	78	82
South Sudan			2[g]	4	5	8	4	2	2	2	3
Spain	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Sri Lanka			85[g]	89	92	98	91	20	20	19	19
Sudan	33[i]	35	37	38	45[i]	76[i]	32[i]	6	18	21	23
Suriname		100	100	100	100	100	97	79	88	89	91
Swaziland			51	57	65[i]	100	27	27	33	34	35
Sweden	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
Switzerland	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100

	Access to electricity (% of population[a])							Access to clean fuels and technologies for cooking[c] (% of population)			
	Total					Urban[b]	Rural	Total			
	1990	2000	2010	2012	2014	2014	2014	2000	2010	2012	2014[c]
Syrian Arab Republic			93[g]	94	96	100	86	95	100	100	100
Tajikistan		98	99	99[g]	100	100	99	62	69	70	72
Tanzania (United Rep. of)		10	15[g]	15[g]	16	41	4	2	2	2	2
Thailand		82[g]	100[g]	100	100	100	100	60	72	74	76
Timor-Leste			38[g]	42	45	63	37	5	4	4	4
Togo		17[h]	37	41	46[h]	83[h]	16[h]	2	4	5	6
Tonga		85	92	93[g]	95	100	91	50	60	62	63
Trinidad and Tobago		91[g]	99	100[e]	100[e]	100[e]	100[e]	96	100	100	100
Tunisia		95[f]	100[f]	100[f]	100[f]	100	100	91	99	100	100
Turkey			100[g]	100	100	100	100				
Turkmenistan		100[g]	100[g]	100	100	100	100	98	100	100	100
Turks and Caicos Islands	89[g]	96	94	93	95	95	100[e]				
Tuvalu			97	98[g]	99	99	97	23	28	29	30
Uganda		8	13	14	20[f]	51[f]	10[f]	2	2	2	2
Ukraine			100[e]	100	100[e]	100[e]	100[e]	90	95	97	98
United Arab Emirates	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	96	100	100	100
United Kingdom of Great Britain and Northern Ireland	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
United States of America	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100	100	100	100
United States Virgin Islands	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]	100[e]				
Uruguay			99	99	100[e]	100[e]	97	94	98	99	99
Uzbekistan		100	100	100	100	100	100	81	88	89	90
Vanuatu		22	31	33	34	100	12	13	15	16	16
Venezuela (Bolivarian Rep. of)		98	99	99	99	100	92	94	96	97	97
Viet Nam		86	98	100	99[i]	100[i]	99[i]	24	43	47	51
Wallis and Futuna Islands											
Yemen		51	66	69	72	97	59	61	62	62	62
Zambia	14[h]	17[h]	22[h]	23	28[h]	62[h]	4[h]	13	15	16	16
Zimbabwe		33	36	36	32[i]	83[i]	10[i]	28	31	31	31
World	**73**	**78**	**84**	**85**	**85**	**96**	**73**	**50**	**56**	**56**	**57**
Africa	38	38	43	45	47	76	27	25	25	25	25
Africa (excluding North Africa)	23	26	32	35	37	70	17	11	12	12	12
North Africa	75	81	85	86	88	95	80	75	83	84	85
Arab region	76	82	88	89	90	97	81	79	80	81	82
Arab Least Developed Countries (LDCs)	32	40	48	49	55	80	41	28	36	37	39
Arab North Africa	75	85	94	96	97	99	93	91	98	99	100
Gulf Cooperation Council Countries	100	100	100	100	100	100	100	98	100	100	100
Mashreq	92	96	98	99	99	100	98	88	98	99	100
Asia Pacific	70	79	88	90	90	99	83	40	41	41	42
East and North-East Asia	89	94	99	99	99	100	100	52	59	60	61
North and Central Asia	99	100	100	100	100	100	100	87	94	95	96
South and South-West Asia	47	61	77	81	82	98	73	26	33	34	35
South-East Asia	63	79	88	90	91	96	87	23	44	48	53
The Pacific	83	82	83	83	83	99	44	80	81	81	82
Europe, North America, and Central Asia	99	99	100	100	100	100	100	95	96	96	96
North America	100	100	100	100	100	100	100	100	100	100	100
Western and Central Europe	100	100	100	100	100	100	100	100	100	100	100
South-East Europe	98	100	100	100	100	100	100	68	74	75	76
Eastern Europe, Caucasus, and Central Asia	96	98	100	100	100	100	100	88	94	95	96
Latin America and Caribbean	85	92	96	97	97	99	89	78	79	80	80
Latin America	87	93	97	98	98	100	91	79	86	87	88
Caribbean	71	77	81	82	82	88	69	58	65	67	68
Low income	8	12	22	25	28	55	17	4	6	6	6
Lower middle income	49	63	76	79	80	95	70	26	35	37	38
Upper middle income	88	94	98	98	99	100	97	58	66	68	70
High income	100	100	100	100	100	100	100	98	99	99	99

Note: Unless otherwise noted, data are World Bank estimates based on the statistical model described in chapter 2, annex 2, in the main report.

a. Most surveys report data on the percentage of households with access to electricity rather than on the percentage of the population with access.

b. Data are calculated based on the rural and total population with access and are not based on a statistical model.

c. Data are from the World Health Organization's Global Health Observatory (http://apps.who.int/gho/data/node.main.134, updated April 6, 2016).

d. From the National Risk and Vulnerability Assessment.

e. Based on the assumption of universal access in countries that are either part of a region classified by the United Nations as developed or classified as high income by the World Bank (see chapter 2, annex 2, in the main report).

f. Based on census data.

g. Based on household survey data.

h. Based on Demographic and Health Survey data.

i. Based on Multiple Indicator Cluster Survey data.

j. From the Socio-Economic Database for Latin America and the Caribbean.

k. From the Enquête sur les conditions de vie des ménages du Burundi 2013/14.

l. Based on Living Standards Measurement Study data.

m. From the ECAPOV database.

n. From the National Socioeconomic Survey.

o. From the Enquête permanente sur les conditions de vie.

p. Includes Svalbard and Jan Mayen Islands.

q. Based on Household Income and Expenditure Survey data.

r. From the Enquête intégrale sur les conditions de vie des ménages 4 2013/14.

s. Based on General Household Survey data.

2 ENERGY EFFICIENCY

	Primary energy intensity[a] (megajoules per 2011 PPP $)				Change in energy intensity[b] (%)										Avoided energy consumption (petajoules)	
					Primary energy			Final energy								
								Agricultural		Industrial		Services		Residential		
	1990	2010	2012	2014	1990–2010	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2012–13	2013–14
Afghanistan[c]	1.88	2.94	2.98	2.64	2.25	0.76	-6.00	-4.33	4.93	12.51	5.69	52.33	5.19	-0.08	0.30	-15.83	-4.59
Albania[d]	7.91	3.26	2.94	3.34	-4.34	-4.97	6.54	1.29	4.28	1.08	7.42	-3.13	2.61	2.31	4.64	6.29	2.30
Algeria[d]	3.50	3.61	3.89	4.10	0.15	3.81	2.64	-1.75	5.48	4.06	7.16	8.80		10.40	4.15	33.17	37.00
American Samoa[c]														-5.80	0.33		
Andorra[c]														-4.71	0.91		
Angola[d]	4.61	3.70	3.86	3.65	-1.09	2.13	-2.78							0.11	0.29	-1.75	-12.94
Anguilla[c]																	
Antigua and Barbuda[c]	3.95	4.18	4.14	4.01	0.28	-0.52	-1.54			9.63	-1.43	1.52	-2.10	1.58	0.18	0.02	-0.14
Argentina[d]	5.44	4.25	4.16	4.47	-1.22	-1.09	3.68	-4.46	6.39	-1.54	3.87	-3.98	4.59	2.00	1.56	-54.72	171.81
Armenia[d]	24.37	5.39	5.75	5.35	-7.27	3.24	-3.48	-3.59	4.49	6.95	-1.51	4.26	38.84	10.92	3.63	-3.09	-6.69
Aruba[c]																	
Australia[d]	7.42	5.86	5.49	5.16	-1.17	-3.25	-2.99	0.62	0.67	-2.07	-0.97	-2.83	0.05	-0.58	-2.17	3.24	-93.39
Austria[d]	4.36	3.95	3.69	3.59	-0.50	-3.38	-1.26	5.78	-2.16	-3.05	-0.79	-6.97	-2.10	-2.54	-4.23	31.22	-47.73
Azerbaijan[d]	15.57	3.36	3.88	3.76	-7.38	7.50	-1.54	-0.31	-0.11	12.88	0.43	52.88	-9.73	-6.80	2.72	-4.33	12.44
Bahamas[c]	4.34	2.94	3.39	4.03	-1.94	7.40	9.02	10.72		33.44	32.39	41.12		-2.55	15.92	10.87	-8.04
Bahrain[d]	12.48	10.45	9.79	10.03	-0.89	-3.18	1.18	-5.84	-2.84	-0.99	6.24	-6.70	6.65	0.09	3.87	21.83	6.69
Bangladesh[d]	3.90	3.44	3.30	3.13	-0.63	-2.02	-2.61	12.30	-5.82	-3.19	-4.28	-7.05	-1.04	1.04	1.79	-47.78	-13.45
Barbados[c]	4.65	4.74	4.56	3.88	0.10	-1.90	-7.79							-4.60	-2.14	-0.89	0.05
Belarus[d]	23.13	7.73	7.98	7.06	-5.33	1.59	-5.93	1.70	1.45	-4.98	-1.36	1.51	-6.06	0.68	-3.62	-5.33	-38.30
Belgium[d]	6.62	5.70	4.98	4.82	-0.75	-6.48	-1.61	-2.35	4.79	-5.26	-1.23	-6.19	-4.08	-5.91	-6.40	52.12	-109.32
Belize[c]	8.56	5.06	4.69	4.53	-2.59	-3.65	-1.77	-3.87	-1.13	6.00	2.13	-6.58	-3.80	-4.13	-10.68	0.20	-0.47
Benin[d]	9.55	9.14	9.03	8.74	-0.22	-0.61	-1.60			2.90	24.63	-3.35	-2.69	0.22	0.96	-2.98	-1.04
Bermuda[c]	2.94	2.31	2.04	2.30	-1.20	-6.03	6.20			-12.01	17.85	1.26	-7.90	6.83	8.77	-1.91	0.68
BES Islands[c]																	
Bhutan[c]	30.02	12.55	11.56	11.06	-4.27	-4.03	-2.19		2.71	-5.15	8.01		2.92	-1.11	-1.41	0.29	-2.94
Bolivia (Plurinational State of)[d]	4.30	4.99	5.48	5.22	0.75	4.78	-2.37	1.85	1.20	2.07	-2.42	3.31	2.59	2.82	2.82	-7.21	1.28
Bosnia and Herzegovina[d]	47.11	7.58	7.82	8.85	-8.73	1.57	6.35	0.61	28.98	3.27	7.93			-0.56	57.28	-8.09	49.75
Botswana[d]	4.56	3.36	3.30	3.37	-1.53	-0.82	1.04	5.12	1.02	-3.10	4.07	-2.75	1.15	0.13	0.06	-4.74	1.29
Brazil[d]	3.81	3.89	3.89	4.06	0.11	0.03	2.16	-0.29	-1.10	-0.82	0.41	2.15	3.39	-0.75	1.24	-83.78	173.03
British Virgin Islands[c]														-1.83	-0.19		
Brunei Darussalam[d]	3.65	4.79	5.43	5.25	1.37	6.40	-1.66			-3.72	1.05	-1.93	1.57	2.97	-2.88	-0.90	1.14
Bulgaria[d]	14.60	6.63	6.69	6.34	-3.87	0.45	-2.65	6.46	-6.18	-2.10	-1.27	0.35	-4.94	3.03	-3.52	-23.89	3.87
Burkina Faso[c]	12.92	6.44	6.17	5.95	-3.42	-2.09	-1.82	4.53	23.40	-6.69	11.55			-1.70	-1.89	2.35	-9.86
Burundi[c]	9.79	13.30	7.93	7.83	1.55	-22.78	-0.66			3.61	-10.54			-23.98	-6.14	-5.52	-0.20
Cabo Verde[c]	4.03	3.16	2.84	2.70	-1.21	-5.24	-2.57			-0.17	6.06	-6.18	4.42	1.29	0.01	-0.23	-0.33
Cambodia[d]	14.28	6.15	5.83	5.59	-4.13	-2.58	-2.13			-5.70	-3.48	16.55	6.91	2.01	1.09	-7.45	-2.86
Cameroon[d]	6.24	5.50	5.02	4.93	-0.63	-4.47	-0.91	4.71	1.35	-4.85	12.18	-2.11	-2.30	0.02	-0.02	-5.85	-6.74
Canada[d]	10.17	8.01	7.74	7.70	-1.19	-1.72	-0.24	-3.33	-0.54	0.97	0.31	-8.03	0.11	-0.36	2.83	25.13	-79.31
Cayman Islands[c]														-0.84	1.02		
Central African Republic[c]	11.19	5.71	5.47	8.87	-3.31	-2.10	27.32			3.58	16.77	-3.67	9.32	-3.86	-4.23	8.14	0.18
Chad[c]	6.78	3.18	3.01	2.79	-3.72	-2.59	-3.84			-6.58	-2.88	-4.43	-0.27	-1.89	-1.85	-1.82	-3.19
Chile[d]	4.83	3.92	4.24	3.88	-1.04	3.95	-4.29	1.70	-15.00	-1.18	3.19	-3.63	2.43	4.82	-18.22	33.39	-95.04
China[d]	21.18	8.68	8.19	7.43	-4.36	-2.86	-4.74	-0.32	0.50	-4.62	-4.95	1.51	-3.58	2.41	2.68	-2,593.15	-2,906.04
Chinese Taipei[d]																	
Colombia[d]	3.93	2.61	2.38	2.34	-2.02	-4.52	-0.76	1.82	-0.58	-3.27	-4.51	2.82	-5.16	-0.45	-1.22	-27.62	-24.94
Comoros[c]	3.35	4.94	4.64	4.66	1.97	-3.08	0.20							1.08	0.45	0.25	-0.18
Congo (Dem. Rep. of)[d]	11.14	21.13	24.32	22.59	3.25	7.27	-3.63			-19.00	-5.45		-26.28	-8.74	10.34	40.02	27.20
Congo (Rep. of)[d]	2.63	3.09	4.39	4.08	0.81	19.23	-3.57			54.18	-9.62		-17.94	25.53	0.07	2.61	-3.14
Cook Islands[c]																	
Costa Rica[d]	3.11	3.38	3.13	3.03	0.42	-3.74	-1.60	-1.15	-0.08	-4.45	2.63	-1.08	-1.79	-11.56	-3.27	-2.37	-4.46
Côte d'Ivoire[d]	4.64	7.75	9.10	8.43	2.60	8.37	-3.75	13.13	-0.65	10.44	6.58	3.45	12.26	6.17	0.86	-7.94	-10.71
Croatia[d]	4.90	4.45	4.19	3.97	-0.48	-2.95	-2.73	5.22	1.23	-2.65	0.32	-3.27	-1.12	-2.17	-7.08	-0.88	-12.90
Cuba[d]	5.03	2.48	2.27	2.13	-3.48	-4.21	-3.18	-5.96	6.16	-4.06	-1.45	-0.37	1.75	2.06	2.53	-19.73	4.47
Curacao[d]														-19.26	1.09		
Cyprus[d]	4.15	3.66	3.41	3.29	-0.63	-3.52	-1.71	10.77	3.96	-1.77	26.44	-6.37	-2.11	0.77	-9.35	-1.31	1.63
Czech Republic[d]	10.12	6.31	6.00	5.72	-2.33	-2.53	-2.36	1.55	-1.42	-2.41	-1.90	-4.41	-5.24	-3.80	-4.35	10.66	-47.66
Denmark[d]	4.25	3.42	3.00	2.79	-1.08	-6.29	-3.65	-0.82	-1.22	-4.49	-3.40	-3.29	-3.79	-6.39	-4.97	-5.40	-32.47
Djibouti[c]	3.53	4.76	4.42	4.13	1.50	-3.69	-3.33							0.12	0.19	-0.20	-0.31
Dominica[c]	2.03	2.87	2.91	2.78	1.74	0.64	-2.18			2.80	0.23	3.34	-4.06	0.32	-0.11	0.03	-0.05
Dominican Republic[d]	4.40	2.84	2.90	2.43	-2.16	0.95	-8.40	-1.89	-6.98	-2.08	-8.29	3.26	8.19	-1.53	-0.16	-21.03	-19.00
Ecuador[d]	3.47	3.53	3.24	3.44	0.08	-4.22	3.11	7.17	-0.59	-2.32	0.01	2.60	0.52	1.06	1.73	-2.54	19.87
Egypt[d]	3.98	3.66	3.80	3.48	-0.41	1.83	-4.29	-0.72	-8.88	-3.96	-1.24	6.94	-0.53	1.64	-2.45	-208.15	-56.41
El Salvador[d]	4.34	3.95	3.77	3.52	-0.47	-2.30	-3.48	-100.00		-9.06	-9.54	62.44	-1.53	-7.70	-0.45	-6.92	1.56
Equatorial Guinea[c]	12.66	2.53	2.61	2.63	-7.73	1.52	0.39							1.29	-3.05	-2.66	2.95
Eritrea[d]		4.99	4.81	4.95		-1.81	1.44							0.94	0.02	0.31	0.37
Estonia[d]	17.99	7.96	6.91	7.23	-3.99	-6.84	2.28	4.04	2.36	-5.87	-3.10	-4.15	3.80	-2.45	-4.06	-1.54	-5.83

	Primary energy intensity[a] (megajoules per 2011 PPP $)				Change in energy intensity[b] (%)										Avoided energy consumption (petajoules)	
					Primary energy			Final energy								
								Agricultural		Industrial		Services		Residential		
	1990	2010	2012	2014	1990–2010	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2012–13	2013–14
Ethiopia [d]	30.63	18.96	16.69	14.60	–2.37	–6.17	–6.49	3.46	5.56	–4.11	–4.57	–4.60	–1.91	0.16	0.06	–102.41	–112.05
Faeroe Islands [c]														–3.30	1.66		
Falkland Islands (Malvinas) [c]																	
Fiji [c]	4.56	3.27	3.04	3.12	–1.64	–3.65	1.26			13.23	–3.67	–8.03	3.35	–5.32	5.96	0.82	–0.42
Finland [d]	8.33	7.25	6.65	6.74	–0.69	–4.21	0.67	–3.50	–7.50	1.97	0.28	–2.26	–0.96	–3.78	–3.85	–12.45	–3.55
France [d,e]	5.45	4.58	4.32	4.12	–0.87	–2.89	–2.27	4.85	–4.18	–3.53	–0.66	–1.99	–4.56	–2.38	–5.70	126.56	–444.39
French Guiana [c]																	
French Polynesia [c]														–2.68	–4.44		
Gabon [d]	2.66	8.45	5.35	6.79	5.94	–20.43	12.70	6.87	–3.55	–29.69	29.31	1.57	0.07	0.30	0.09	61.15	–19.55
Gambia [c]	4.77	4.41	4.52	4.62	–0.38	1.16	1.12			–0.08	1.74			–1.86	–1.01	–0.62	0.91
Georgia [d]	13.50	4.94	5.15	5.64	–4.90	2.02	4.65	29.00	–73.29	11.30	–8.24	20.36	42.42	1.75	7.98	9.11	9.28
Germany [d]	5.88	4.12	3.77	3.63	–1.77	–4.26	–1.85			–2.47	–2.48	–4.60	–0.96	–4.00	–5.08	198.67	–525.40
Ghana [d]	7.89	4.14	3.83	3.63	–3.18	–3.73	–2.73	18.85	–26.90	–10.63	–3.36	1.50	14.07	–1.61	1.07	–7.90	–5.31
Gibraltar [d]																	
Greece [d]	4.18	3.55	4.05	3.63	–0.81	6.84	–5.42	–38.10	–4.25	7.12	6.81	7.98	–5.85	4.86	–12.72	–51.58	1.64
Greenland [c]														2.19	–1.83		
Grenada [c]	2.24	3.40	3.49	2.95	2.11	1.34	–8.00	–100.00		–7.64	–5.81	–4.49	5.88	0.91	–2.61	–0.01	–0.06
Guadeloupe [c]																	
Guam [c]														–3.87	–1.37		
Guatemala [d]	3.91	4.35	4.40	4.86	0.53	0.63	5.12			4.29	43.20	–2.62	3.54	–0.87	2.48	21.88	26.12
Guinea [c]	15.51	11.40	10.61	10.17	–1.53	–3.53	–2.06			–5.31	–9.48	6.77	–11.59	–2.41	–2.39	–5.70	0.47
Guinea-Bissau [c]	12.63	12.87	12.36	12.38	0.09	–2.01	0.10			–2.05	4.28			–1.07	–1.13	0.19	–0.20
Guyana [c]	11.58	7.36	7.46	6.61	–2.24	0.70	–5.86	17.96	–5.99	–10.29	–10.20	3.59	1.04	0.28	–1.26	–3.49	0.25
Haiti [d]	4.39	10.58	10.46	9.95	4.50	–0.60	–2.45							0.77	–0.93	–2.39	1.26
Honduras [d]	6.34	5.87	6.10	6.01	–0.38	1.90	–0.70			13.16	–27.85	–6.23	–4.33	4.04	2.39	–6.49	–15.64
Hong Kong (SAR, China) [d]	2.34	1.69	1.66	1.57	–1.61	–1.08	–2.82			3.08	0.21	–2.54	–1.25	0.67	1.19	–8.58	7.62
Hungary [d]	6.84	4.86	4.43	4.08	–1.70	–4.44	–4.02	–5.02	5.40	–5.87	17.97	–6.78	–12.95	–5.21	–6.65	14.88	–20.28
Iceland [d]	12.99	18.32	18.54	18.18	1.73	0.60	–0.98	–5.02	10.61	–0.78	1.07	3.05	–1.97	2.40	–1.16	0.33	–1.29
India [d]	8.29	5.35	5.20	4.94	–2.16	–1.44	–2.49	4.73	3.19	–1.94	0.42	–1.47	–5.17	0.47	1.33	–538.62	–558.27
Indonesia [d]	5.08	4.34	3.85	3.70	–0.79	–5.78	–2.04	–10.45	–16.52	–11.56	–0.84	–3.12	–1.59	3.60	1.21	–123.98	–93.62
Iran (Islamic Rep. of) [d]	5.08	6.58	7.20	7.69	1.30	4.64	3.38	–1.73	–1.48	12.49	3.54	–8.82	2.36	–2.88	3.71	368.17	46.22
Iraq [d]	4.17	4.01	4.01	4.14	–0.19	–0.11	1.70			18.27	0.93	–8.12	9.97	–2.52	–9.92	–58.23	–154.63
Ireland [d]	5.55	2.95	2.62	2.39	–3.10	–5.73	–4.51	1.35	–15.87	2.06	0.07	–4.99	–8.25	–9.00	–3.16	–3.24	–24.15
Isle of Man [c]																	
Israel [d]	5.20	4.30	4.16	3.67	–0.95	–1.59	–6.09							0.70	–16.03	–63.90	7.41
Italy [d,f]	3.52	3.43	3.26	3.03	–0.12	–2.53	–3.60	–1.40	–0.40	–2.16	–4.20	–2.74	–4.03	–1.70	–8.21	–34.58	–204.47
Jamaica [d]	6.60	4.97	5.09	5.10	–1.41	1.21	0.08	8.89	–40.88	9.69	10.68	–8.48	–4.14	0.94	–3.91	6.92	–0.99
Japan [d]	5.03	4.74	4.23	4.09	–0.30	–5.45	–1.73	4.49	–5.58	–0.16	–2.72	–3.36	2.49	–2.38	–3.03	–85.70	–227.29
Jordan [d]	6.13	4.37	4.59	4.51	–1.68	2.45	–0.86	9.40	6.12	–3.60	–2.62	–8.08	–3.35	4.63	–4.74	–14.43	4.28
Kazakhstan [d]	13.83	8.47	8.07	7.60	–2.42	–2.38	–2.92	2.82	–3.23	–2.22	–7.77	–22.31	17.18	6.66	4.35	–47.45	–324.98
Kenya [d]	8.05	7.98	7.43	7.82	–0.04	–3.49	2.59	–22.36	22.35	–12.11	2.82	0.02	1.59	–0.01	0.08	–6.47	2.41
Kiribati [c]	3.12	5.38	5.01	4.83	2.76	–3.47	–1.87							–2.43	–0.58	–0.01	–0.02
Korea (Dem. People's Rep. of) [d]														–0.06	0.51		
Korea (Rep. of) [d]	7.51	6.96	6.92	6.63	–0.38	–0.32	–2.12	–1.92	–8.55	–0.99	–0.02	–3.27	–2.80	0.48	–3.45	–74.60	–165.32
Kosovo [d]		7.42	6.55	5.84		–6.06	–5.58	8.21	3.88	–3.82	–12.41	–0.98	3.13	0.53	0.39	–1.27	–0.76
Kuwait [d]	4.80	5.96	5.91	5.41	1.08	–0.41	–4.32			–0.82	2.71	0.78	0.37	–1.74	–1.64	–16.42	62.85
Kyrgyzstan [d]	20.54	7.58	10.76	8.56	–4.86	19.09	–10.79	–2.71	12.55	27.36	–12.59	12.44	–15.41	15.30	20.55	–18.12	–18.27
Lao PDR [c]	8.05	3.00	2.51	2.30	–4.82	–8.52	–4.25	–14.27	–5.15	–10.00	16.36			–1.32	–0.98	–4.55	–4.85
Latvia [d]	8.06	5.00	4.44	4.14	–2.36	–5.82	–3.46	–6.45	–0.62	–2.24	–2.80	–1.26	–3.58	1.08	–4.18	–12.16	–1.80
Lebanon [d]	3.91	3.78	4.08	4.15	–0.17	3.85	0.86			1.60	–1.20	–6.53	7.54	11.95	1.01	–8.81	21.43
Lesotho [c]	17.43	11.67	11.75	11.02	–1.98	0.34	–3.17			–1.48	6.80	–5.24	–5.15	–0.55	–0.94	–1.92	–1.67
Liberia [c]	20.69	27.13	25.55	24.02	1.36	–2.95	–3.04	1.19	2.47	–25.17	–25.30			0.81	1.26	–4.46	–0.47
Libya [d]	4.65	4.76	5.09	8.03	0.11	3.45	25.57							–5.96	–7.78	85.92	89.40
Liechtenstein [c]														4.96	–8.28		
Lithuania [d]	11.27	4.58	4.36	3.88	–4.40	–2.51	–5.69	–4.18	–2.12	–5.05	–7.25	–3.39	–3.73	–0.07	–3.56	–11.63	–2.24
Luxembourg [d]	6.58	3.84	3.67	3.14	–2.66	–2.29	–7.41	0.35	18.33	–3.04	–8.88	–4.61	–6.26	–3.85	–3.71	–8.97	–12.93
Macao (SAR, China) [c]	1.17	0.63	0.49	0.46	–3.08	–12.10	–2.59							2.35	3.60	–1.04	2.08
Macedonia (The former Yugoslav Rep. of) [d]	5.40	5.13	5.18	4.30	–0.25	0.47	–8.83	–1.96	–5.89	–3.24	–15.44	–0.36	–10.51	–1.41	–7.05	–5.14	–3.25
Madagascar [c]	4.44	5.13	5.15	5.18	0.73	0.14	0.36			39.80	–0.39	1.34	4.20	–2.53	–16.62	–5.22	–1.60
Malawi [c]	9.14	6.27	5.96	5.46	–1.86	–2.55	–4.24			4.94	–2.92	–20.91	2.60	–4.48	–3.26	–2.33	–3.13
Malaysia [d]	4.80	5.18	4.95	5.13	0.38	–2.26	1.88	–2.40	–3.10	4.79	–2.07	–7.26	–2.96	0.66	0.21	109.49	–5.62
Maldives [c]	2.62	3.47	3.71	3.99	1.42	3.32	3.80			2.24	1.26	–0.73	13.68	–1.66	19.33	–0.81	1.74
Mali [c]	5.69	2.37	2.04	1.96	–4.28	–7.36	–1.79			1.91	0.45	–15.32	–1.33	–1.43	–2.89	–5.89	–1.49
Malta [d]	4.95	3.02	3.10	2.57	–2.44	1.33	–9.03							0.88	–0.33	0.09	–0.09
Marshall Islands [c]		7.91	7.55	7.45		–2.31	–0.67									0.01	0.01
Martinique [c]																	

	Primary energy intensity[a] (megajoules per 2011 PPP $)				Change in energy intensity[b] (%)										Avoided energy consumption (petajoules)	
					Primary energy			Final energy								
								Agricultural		Industrial		Services		Residential		
	1990	2010	2012	2014	1990–2010	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2012–13	2013–14
Mauritania [c]	4.01	3.73	3.82	3.50	-0.35	1.16	-4.21	-1.41	-1.95	7.91	-5.85	-2.25	50.17	3.53	-1.43	-2.40	-0.86
Mauritius [d]	3.48	2.83	2.68	2.62	-1.04	-2.57	-1.14	0.23	-0.05	-3.90	-1.77	-0.30	0.60	0.79	2.78	-0.55	-0.50
Mayotte [c]																	
Mexico [d]	4.82	4.01	4.07	3.85	-0.91	0.68	-2.73	2.10	-5.25	0.42	-5.76	-2.10	0.67	-0.81	-2.11	-58.95	-188.16
Micronesia (Federated States of) [c]		5.01	5.77	6.84		7.34	8.89			-6.10	32.86	-4.67	1.53	2.07	1.73	0.23	0.18
Moldova (Rep. of) [d]	17.40	10.50	9.68	8.16	-2.49	-4.00	-8.18	-15.14	-17.84	-7.95	-13.40	-5.43	-5.22	2.13	1.06	-12.45	-1.13
Monaco [c]																	
Mongolia [d]	12.75	7.89	7.25	6.78	-2.37	-4.14	-3.31	-6.27	-12.58	2.87	-12.98	-2.57	-4.68	-1.67	-1.00	-7.73	-17.58
Montenegro [d]		5.77	5.19	4.43		-5.15	-7.57	-4.37	26.52	3.10	-23.63	129.79	173.59	-8.72	-4.63	-3.64	-0.99
Montserrat [c]																	
Morocco [d]	3.25	3.37	3.40	3.23	0.19	0.40	-2.63	1.16	-4.29	2.33	-5.33	-2.42	4.08	2.08	0.76	-22.55	-6.53
Mozambique [d]	49.44	18.76	17.31	16.58	-4.73	-3.94	-2.13	4.88	9.65	-1.64	-2.01	-7.85	5.02	-1.95	0.51	-15.04	-9.96
Myanmar [d]	14.89	3.15	3.10	3.24	-7.48	-0.74	2.29	20.44	27.03					0.36	0.16	-16.65	15.12
Namibia [d]		3.50	3.39	3.32		-1.56	-1.18	9.94	12.18	3.67	-0.57	-5.23	-6.95	-0.18	4.08	0.78	-1.12
Nauru [c]														1.89	2.61		
Nepal [d]	10.79	7.97	7.27	7.67	-1.51	-4.45	2.69	0.88	6.06	10.46	1.33	3.35	-0.25	-3.21	6.02	29.02	-7.31
Netherlands [d]	5.69	4.59	4.25	3.97	-1.07	-3.73	-3.44	-4.56	-5.88	-0.57	-1.15	-5.09	-7.02	-7.05	-8.63	12.76	-205.46
New Caledonia [c]														2.74	-2.22		
New Zealand [d]	6.66	5.51	5.46	5.57	-0.94	-0.48	1.07	3.97	-5.38	-1.95	2.28	-0.61	-2.53	-1.18	-1.52	1.36	5.07
Nicaragua [d]	6.75	5.36	5.31	5.42	-1.15	-0.44	0.97	38.45	6.99	-6.19	-4.64	-2.32	6.76	0.18	0.38	-2.79	0.28
Niger [d]	6.58	6.98	6.23	7.01	0.30	-5.51	6.08	2.46	-12.35	-3.78	-7.81	-11.00	6.95	-7.78	12.13	15.35	-2.36
Nigeria [d]	9.60	6.15	6.26	5.64	-2.20	0.92	-5.12	-39.72	-3.48	12.11	-15.16	26.82	-11.55	0.34	-0.19	-217.48	-333.28
Niue [c]																	
Northern Mariana Islands [c]														1.25	-0.16		
Norway [d,g]	4.80	4.61	3.89	3.65	-0.20	-8.20	-3.08	0.69	-10.21	-1.30	0.41	-3.10	-7.03	-4.45	-4.92	-1.11	-43.29
Oman [d]	2.78	5.68	6.79	6.52	3.64	9.28	-1.96	3.74	4.70		3.58		-0.37	0.54	0.56	10.49	21.85
Pakistan [d]	5.46	4.87	4.67	4.43	-0.57	-2.11	-2.58	-10.41	4.50	-4.55	-3.42	-3.10	-2.03	1.32	-0.77	-109.27	-84.83
Palau [c]		13.88	12.70	12.99		-4.31	1.10					-4.76	-3.97	-4.94	-0.57	0.06	-0.05
Palestine (State of) [c]	4.69	3.38	2.96	3.70	-1.63	-6.37	11.82	77.25	31.10	4.13	-16.54	15.38	-9.63	0.19	-0.37	3.86	14.79
Panama [d]	3.28	2.69	2.47	2.27	-0.99	-4.22	-4.00	1.51	10.04	-1.16	-12.62	-6.04	4.98	0.66	1.67	-6.68	-1.32
Papua New Guinea [c]	13.19	9.50	8.16	7.94	-1.63	-7.31	-1.33					27.36	45.39	-2.05	-1.72	5.12	-8.60
Paraguay [d]	5.06	4.45	4.49	3.88	-0.64	0.43	-6.94			-3.25	-3.21	3.18	2.57	-0.55	-0.80	-25.95	0.62
Peru [d]	3.55	2.69	2.62	2.81	-1.36	-1.45	3.59	12.82	-23.85	-1.97	5.31	3.13	4.05	-5.16	-0.31	9.84	-21.27
Philippines [d]	4.84	3.22	3.12	3.03	-2.01	-1.60	-1.51	-6.33	4.63	-5.25	-2.45	-2.83	2.95	-0.43	0.46	-14.39	-19.15
Poland [d]	11.17	5.15	4.70	4.32	-3.80	-4.50	-4.07	-0.28	-7.73	-4.02	-2.53	-4.20	-5.30	-2.82	-4.38	-81.05	-158.91
Portugal [d]	3.47	3.40	3.29	3.25	-0.11	-1.60	-0.54	-6.47	-1.22	-3.38	0.27	0.86	1.42	-4.48	-1.92	-1.27	-10.30
Puerto Rico [c]	0.01	0.21	0.39	0.49	15.86	35.63	11.56	-5.56	5.56	3.71	-15.35			-1.84	3.94	0.86	0.03
Qatar [d]	8.03	5.13	5.95	6.32	-2.21	7.65	3.05			5.93	0.12	-3.77	6.29	-1.39	15.40	-6.83	44.36
Reunion [c]																	
Romania [d]	10.05	4.17	4.09	3.48	-4.30	-0.97	-7.75	13.82	-22.13	3.60	-5.89	-11.15	-0.69	0.22	-3.83	-74.49	-32.50
Russian Federation [d]	12.03	8.73	8.70	8.19	-1.59	-0.21	-2.95	9.95	-11.48	-2.33	-2.84	-4.32	-0.26	-0.82	1.43	-468.47	9.82
Rwanda [c]	5.73	6.14	5.69	5.34	0.35	-3.74	-3.16							0.72	-0.64	-1.22	-4.18
Saint Barthelemy [c]																	
Saint Helena [c]																	
Saint Kitts and Nevis [c]	3.69	2.96	2.99	2.68	-1.10	0.47	-5.21	6.17	9.93	11.40	-10.11	-4.22	-4.90	-0.91	0.03	-0.09	-0.10
Saint Lucia [c]	2.24	3.14	3.19	3.19	1.71	0.71	0.03			-0.06	7.88	1.84	2.18	-1.86	0.00	0.00	0.03
Saint Martin (French part) [c]																	
Saint Pierre and Miquelon [c]																	
Saint Vincent and the Grenadines [c]	2.19	3.10	3.46	2.83	1.75	5.62	-9.48			1.40	16.23	-7.15	12.34	8.83	9.49	-0.39	0.11
Samoa [c]	4.34	4.53	4.06	4.26	0.21	-5.37	2.45	-43.02	-2.46	2.42	83.18	-6.96	-2.41	-5.71	3.23	0.16	-0.03
San Marino [c]																	
Sao Tome and Principe [c]	5.71	5.08	5.00	4.61	-0.58	-0.86	-3.98					5.48	-5.33	-0.37	-1.90	-0.07	
Saudi Arabia [d]	4.20	6.25	5.82	5.83	2.01	-3.45	0.08	5.91	2.61	-5.40	2.90	3.05	0.22	2.35	2.26	-59.60	122.96
Senegal [d]	5.04	5.66	5.60	5.10	0.58	-0.56	-4.56	1.67	-55.20	4.70	0.04	2.59	-9.54	-1.06	-10.30	-10.16	-0.31
Serbia [d]	7.23	7.29	6.76	6.12	0.04	-3.65	-4.85	24.20	-16.09	-1.95	-6.49	-4.68	-5.56	1.33	-5.64	-17.28	-15.72
Seychelles [c]	2.23	3.34	2.87	2.98	2.05	-7.35	1.86			-4.24	17.07	3.57	-11.90	1.49	-2.12	-0.88	1.01
Sierra Leone [c]	9.32	7.62	6.72	5.73	-1.00	-6.10	-7.71			-38.77	-9.76	-4.65	-15.02	-2.67	-2.92	-7.83	-0.68
Singapore [d]	4.62	2.91	2.71	2.70	-2.28	-3.57	-0.20			-0.46	-2.33	-2.58	-2.83	-2.25	0.41	-6.51	-17.80
Sint Maarten (Dutch part) [c]																	
Slovak Republic [d]	11.83	5.65	5.06	4.66	-3.63	-5.40	-4.05	-6.17	-16.80	-3.62	-2.84	-17.37	-4.55	-5.51	-3.00	4.84	-35.67
Slovenia [d]	6.40	5.28	5.18	4.81	-0.96	-0.95	-3.61	5.88	-4.77	-0.55	-1.05	-7.17	-3.86	-4.24	-8.04	-2.34	-13.78
Solomon Islands [c]	9.40	6.39	5.47	5.33	-1.91	-7.51	-1.29							-1.76	-1.24	-0.13	-0.02
Somalia [c]	23.57	43.35	41.94	40.07	3.09	-1.65	-2.25							-1.39	0.32	-2.43	-0.44
South Africa [d]	10.44	9.67	9.00	9.16	-0.38	-3.50	0.84	8.40	1.50	-2.68	1.98	3.86	-0.63	3.63	-0.51	79.36	-51.76
South Sudan [d]			1.37	1.28			-3.57								-4.55	-3.45	-0.01
Spain [d]	4.03	3.48	3.55	3.25	-0.72	0.95	-4.30	8.14	-4.47	6.92	1.30	1.07	-6.63	-4.41	-2.36	-54.61	-106.90
Sri Lanka [d]	3.69	2.37	2.31	2.03	-2.19	-1.18	-6.32	-47.69	26.89	-5.40	-1.55	-2.47	-6.73	6.82	-10.31	-45.16	-9.36

	Primary energy intensity[a] (megajoules per 2011 PPP $)				Change in energy intensity[b] (%)										Avoided energy consumption (petajoules)	
					Primary energy			Final energy								
								Agricultural		Industrial		Services		Residential		
	1990	2010	2012	2014	1990–2010	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2010–12	2012–14	2012–13	2013–14
Sudan[d]	9.85	4.68	4.18	4.11	-3.66	-5.45	-0.87	-14.97	2.31	-14.81	-4.76	-3.71	-1.63	-9.59	0.46	-8.91	-4.59
Suriname[d]	5.11	3.99	4.00	3.38	-1.22	0.09	-8.07	7.74	-4.49	5.11	0.87	3.63	-1.04	5.55	2.18	-2.52	0.87
Swaziland[c]	3.65	4.80	4.87	5.00	1.38	0.71	1.30	-1.32	-5.88	-1.71	10.21	-18.85	31.46	3.22	3.08	1.70	-0.43
Sweden[d]	7.47	5.30	5.10	4.73	-1.70	-1.89	-3.71	-17.89	-10.12	-0.48	-0.62	-7.14	0.87	-2.03	-8.80	-49.77	-45.15
Switzerland[d]	3.26	2.59	2.46	2.32	-1.15	-2.54	-2.87	13.73	-13.10	-4.93	-1.33	-4.29	-7.53	-4.99	-6.21	5.38	-84.66
Syrian Arab Republic[d]	9.61	6.93	6.53	6.29	-1.62	-2.91	-1.89	2.87	0.98			-29.68	-25.19	-14.81	-12.22	30.09	-12.81
Tajikistan[d]	11.54	5.66	5.29	5.51	-3.50	-3.35	2.12	-6.29	-3.41	-10.40	-24.82	142.09	5.57	-6.16	7.97	3.46	1.08
Tanzania (United Rep. of)[d]	11.18	9.24	9.14	8.54	-0.95	-0.56	-3.37	0.05	-0.09	0.51	0.12	-4.67	-1.23	-0.19	-0.28	-31.02	-25.01
Thailand[d]	4.67	5.45	5.39	5.56	0.78	-0.48	1.55	3.26	0.87	5.01	0.54	-1.92	-9.67	2.38	-0.93	-72.93	-15.17
Timor-Leste[c]		2.20	2.19	3.00		-0.40	17.15					-12.64	15.03	-7.39	2.33	0.56	0.34
Togo[d]	10.34	16.60	15.14	14.53	2.39	-4.51	-2.03			7.72	2.86	-16.14	-1.47	0.46	0.11	-0.90	-2.44
Tonga[c]	3.26	3.24	2.94	3.07	-0.04	-4.81	2.29					0.68	2.71	-18.54	3.04	0.12	-0.01
Trinidad and Tobago[d]	16.92	21.15	20.01	19.83	1.12	-2.73	-0.44			1.91	4.83	-2.60	0.28	-2.77	5.20	2.85	13.38
Tunisia[d]	4.46	3.86	3.80	3.72	-0.72	-0.79	-0.96	-2.86	5.48	4.15	3.06	-0.02	-1.60	1.02	1.20	-6.29	3.64
Turkey[d]	3.83	3.71	3.70	3.55	-0.16	-0.11	-2.13	-6.47	-1.74	0.29	-3.57	30.05	-5.58	-2.85	-8.24	-222.27	-9.60
Turkmenistan[d]	23.94	18.78	16.59	14.29	-1.21	-6.01	-7.17							-5.98	4.07	-44.41	-51.89
Turks and Caicos Islands[c]														0.59	-0.08		
Tuvalu[c]	3.45	3.88	3.69	3.70	0.59	-2.45	0.09	100.36	-0.74			-10.21	1.19	-4.34	-0.17		0.00
Uganda[c]	20.88	8.25	7.51	7.03	-4.54	-4.58	-3.27	-6.84	3.71	-3.59	-16.67	7.52	9.29	-0.72	-3.20	-4.68	-28.14
Ukraine[d]	19.38	15.41	13.52	12.49	-1.14	-6.32	-3.90	-0.31	-10.87	-2.94	0.89	0.67	-1.52	-0.51	-6.53	-52.92	-125.97
United Arab Emirates[d]	4.12	5.40	5.32	5.03	1.36	-0.71	-2.81			-1.98	-5.51	2.31	-3.59	0.16	3.99	-8.93	-146.17
United Kingdom of Great Britain and Northern Ireland[d]	5.66	3.74	3.47	3.05	-2.05	-3.75	-6.14	1.96	-2.71	-2.14	-3.72	-2.36	-6.54	-5.71	-7.97	-74.84	-447.03
United States of America[d]	8.67	6.07	5.69	5.63	-1.76	-3.18	-0.58	-8.48	-8.36	-3.24	-0.95	-3.96	2.54	-4.86	4.96	643.88	-154.19
United States Virgin Islands[c]														-2.60	-5.64		
Uruguay[d]	3.08	2.97	3.09	2.91	-0.18	2.08	-3.00	-1.41	-0.29	2.57	7.07	-1.00	-4.93	1.00	0.88	0.04	4.58
Uzbekistan[d]	31.22	15.13	14.47	11.18	-3.56	-2.22	-12.09	-6.74	-5.68	-1.86	-13.30	2.07	-15.73	7.32	-10.47	-306.01	-76.01
Vanuatu[c]	3.13	3.87	3.69	4.30	1.07	-2.38	7.91							-2.32	-2.41	-0.16	0.60
Venezuela (Bolivarian Rep. of)[d]	5.77	6.31	5.79	5.49	0.44	-4.22	-2.60	4.71	2.15	-8.81	-4.54	-2.19	-5.65	-0.33	-0.77	-161.79	14.24
Viet Nam[d]	7.55	6.32	5.74	5.72	-0.88	-4.70	-0.17	-2.41	2.08	-3.64	0.59	-4.35	4.23	0.99	2.44	-42.74	21.45
Wallis and Futuna Islands[c]																	
Yemen[d]	2.59	3.17	2.79	3.33	1.00	-6.11	9.24							-13.72	6.58	70.79	-24.49
Zambia[d]	12.08	7.77	7.58	7.40	-2.18	-1.23	-1.17	11.49	1.08	11.01	0.93	-1.08	-6.17	-0.50	-0.84	-4.21	-7.16
Zimbabwe[d]	14.70	20.71	18.44	17.76	1.73	-5.65	-1.86	-8.26	-10.65	-0.82	-12.49	-25.97	-13.55	0.43	0.25	-16.64	-11.15
World	**7.83**	**5.95**	**5.73**	**5.49**	**-1.36**	**-1.92**	**-2.06**	**-0.97**	**-2.07**	**-2.36**	**-2.18**	**-3.19**	**-1.30**	**-0.91**	**0.16**	**-4,365.63**	**-7,460.32**
Africa	7.49	6.17	6.12	5.97	-0.96	-0.42	-1.17	-0.55	-2.48	-1.52	-0.99	4.57	1.41	-0.61	0.20	-217.73	-379.61
Africa (excluding North Africa)	9.95	7.93	7.64	7.32	-1.13	-1.82	-2.15	0.98	-0.16	-2.73	-2.54	7.25	-4.30	-1.01	0.14	-206.64	-546.78
North Africa	4.15	3.81	3.90	3.88	-0.43	1.10	-0.25	-2.48	-5.25	-1.13	0.66	0.16	12.98	1.52	0.06	-134.08	29.88
Arab Region	4.38	4.91	4.91	4.90	0.58	-0.02	-0.15	-1.44	-4.04	-0.11	0.54	0.38	4.33	0.62	0.04	-193.40	34.97
Arab Least Developed Countries (LDCs)	6.27	4.04	3.65	3.80	-2.17	-4.94	1.91	-12.44	1.44	-12.91	-4.88	-4.08	-1.25	-9.77	1.42	59.22	-29.38
Arab North Africa	3.77	3.80	3.94	4.21	0.05	1.77	3.34	-2.02	-0.97	3.81	3.89	-2.15	41.73	5.36	2.08	85.23	95.37
Gulf Cooperation Council Countries (GCC)	4.42	6.00	5.88	5.80	1.54	-1.04	-0.62	5.64	2.70	-1.08	0.83	1.70	-0.52	1.18	2.64	-54.49	123.69
Mashreq	4.52	4.07	4.06	3.89	-0.52	-0.15	-2.19	0.52	-7.00	-1.86	-1.50	-0.95	-1.51	-0.46	-4.44	-296.43	-179.42
Asia Pacific	9.07	6.61	6.38	6.00	-1.57	-1.80	-2.98	0.96	-1.32	-2.37	-3.20	-2.31	-2.49	0.83	1.03	-4,130.32	-4,027.93
East and North-East Asia	9.76	7.48	7.13	6.63	-1.32	-2.32	-3.63	-0.45	-0.33	-3.40	-4.23	-2.10	-2.27	1.75	1.80	-2,379.56	-2,677.37
North and Central Asia	12.74	8.77	8.73	8.15	-1.85	-0.24	-3.40	6.33	-10.06	-2.38	-4.03	-4.36	0.24	0.08	0.37	-819.28	-382.45
South and South-West Asia	6.36	5.15	5.08	4.92	-1.05	-0.70	-1.60	1.80	1.55	0.64	0.17	1.25	-4.33	-0.19	0.77	-727.97	-653.31
South-East Asia	5.24	4.53	4.22	4.18	-0.72	-3.48	-0.48	-3.20	-4.89	-3.39	-1.01	-3.68	-3.01	2.28	0.93	-188.92	-117.26
The Pacific	7.35	5.85	5.51	5.25	-1.13	-2.95	-2.37	1.20	-1.20	-2.02	-0.58	-2.51	-0.27	-0.88	-2.03	13.08	-92.82
Europe, North America, and Central Asia	8.03	5.59	5.33	5.12	-1.80	-2.31	-2.01	-2.08	-6.44	-1.70	-1.84	-3.37	-0.39	-3.06	-0.88	-406.45	-3,482.34
North America	8.80	6.23	5.86	5.80	-1.71	-3.01	-0.53	-7.06	-7.40	-2.33	-0.63	-4.40	2.31	-4.37	4.72	682.12	-232.70
Western and Central Europe	5.53	4.17	3.91	3.67	-1.40	-3.13	-3.17	-1.14	-4.73	-1.80	-1.59	-3.33	-4.16	-3.73	-5.99	51.00	-2,640.20
South-East Europe	9.60	5.14	5.01	4.57	-3.07	-1.29	-4.51	9.04	-12.57	1.42	-4.18	-6.46	-2.33	0.12	-0.87	-129.56	-14.75
Eastern Europe, Caucasus, and Central Asia	12.48	7.97	7.79	7.21	-2.22	-1.09	-3.84	2.33	-7.66	-2.53	-4.21	0.18	-1.34	-0.39	-1.89	-1,251.66	-680.23
Latin America and Caribbean	4.48	4.03	3.98	3.96	-0.53	-0.65	-0.26	0.99	-0.32	-2.19	-1.65	0.19	1.42	-0.03	-0.70	-420.17	-6.33
Latin America	4.41	3.98	3.94	3.94	-0.50	-0.51	-0.09	0.97	-0.25	-2.23	-1.70	0.07	1.51	-0.06	-0.78	-391.74	9.94
Caribbean	5.71	4.86	4.62	4.33	-0.81	-2.46	-3.20	2.53	-5.00	-0.97	-1.09	3.34	-0.76	0.31	0.46	-28.11	-11.14
Low income	12.63	10.52	9.83	9.34	-0.91	-3.35	-2.53	-2.67	-0.93	-5.03	-3.29	-3.05	-2.58	-2.88	1.12	-258.43	-138.98
Lower middle income	8.44	5.28	5.05	4.75	-2.32	-2.25	-3.00	1.56	-0.93	-3.34	-1.81	-0.16	-4.05	1.06	0.11	-1,776.68	-1,530.70
Upper middle income	8.76	6.64	6.47	6.17	-1.38	-1.23	-2.40	-0.24	-0.67	-2.17	-3.42	0.95	-1.36	1.36	1.61	-2,211.87	-2,753.82
High income	7.10	5.42	5.16	4.99	-1.34	-2.42	-1.62	-1.58	-5.31	-2.03	-1.14	-3.75	-0.14	-3.08	-0.63	-123.99	-3,027.52

a. For some countries no energy intensity value is shown because GDP data were not available.

b. All changes refer to compound annual rates.

c. Based on data from the United Nations Statistics Division's Energy Statistics Database and the World Bank's World Development Indicators database.

d. Based on data from the International Energy Agency's World Energy Statistics and Balances database and the World Bank's World Development Indicators database.

e. Includes Monaco.

f. Includes San Marino.

g. Includes Svalbard and Jan Mayen Islands.

3 RENEWABLE ENERGY

	Share in total final energy consumption (%)												Final use of renewable energy (petajoules)			Total final energy consumption (petajoules)
					Solid biofuels											
	Renewable energy				Traditional use	Modern use	Hydro	Liquid biofuels	Wind	Solar	Geothermal	Other (biogas, renewable waste, marine)	Electricity	Heat	Transport	
	1990	2010	2012	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014
Afghanistan [a]	15.92	14.84	13.97	16.75	8.82	0.00	7.93	0.00	0.00	0.00	0.00	0.00	11.57	12.88	0.00	145.97
Albania [b]	25.52	37.12	40.05	38.69	7.81	1.62	27.40	1.25	0.00	0.61	0.00	0.00	23.49	8.61	1.07	85.71
Algeria [b]	0.18	0.26	0.19	0.07	0.02	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.65	0.25	0.00	1,311.92
American Samoa [a]	0.00	0.00	0.70	0.70	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.49
Andorra [a]	14.27	19.09	19.20	19.89	0.28	0.00	18.52	0.00	0.00	0.00	0.00	1.09	1.53	0.11	0.00	8.25
Angola [b]	72.26	54.19	52.25	50.80	46.35	1.12	3.33	0.00	0.00	0.00	0.00	0.00	15.66	223.47	0.00	470.74
Anguilla [a]	0.30	0.12	0.13	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44
Antigua and Barbuda [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.53
Argentina [b]	8.92	8.96	9.87	10.77	0.45	2.52	5.55	2.15	0.10	0.00	0.00	0.00	143.93	62.10	51.48	2,390.30
Armenia [b]	2.12	9.36	6.57	7.72	1.72	0.00	6.00	0.00	0.01	0.00	0.00	0.00	4.96	1.42	0.00	82.62
Aruba [a]	0.20	5.46	6.86	6.92	0.32	0.00	0.00	0.00	6.60	0.00	0.00	0.00	0.43	0.02	0.00	6.43
Australia [b]	8.01	8.55	8.44	9.50	0.00	5.38	1.74	0.31	0.97	0.87	0.00	0.23	111.67	181.34	9.75	3,187.79
Austria [b]	25.14	30.95	33.70	35.78	0.00	16.13	14.01	2.55	1.31	1.00	0.07	0.70	176.64	168.64	24.87	1,034.41
Azerbaijan [b]	0.72	4.45	2.85	2.12	0.74	0.34	0.97	0.00	0.00	0.00	0.00	0.06	3.43	3.56	0.01	330.64
Bahamas [a]	xxx	1.78	1.23	1.10	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	25.70
Bahrain [b]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	184.58
Bangladesh [b]	71.66	41.07	38.63	37.49	37.26	0.00	0.18	0.00	0.00	0.04	0.00	0.00	2.32	379.32	0.00	1,018.14
Barbados [a]	18.94	9.03	4.13	3.17	0.08	3.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	11.59
Belarus [b]	0.82	7.02	7.25	6.63	2.24	4.17	0.05	0.14	0.00	0.00	0.00	0.03	0.79	46.36	0.11	712.31
Belgium [b]	1.27	5.67	7.79	9.04	0.00	4.43	0.08	1.29	1.41	0.95	0.00	0.87	49.40	53.81	16.64	1,326.02
Belize [a]	38.01	33.71	37.11	36.54	0.20	26.84	9.50	0.00	0.00	0.00	0.00	0.00	1.02	2.90	0.00	10.72
Benin [b]	93.70	51.55	51.08	48.60	40.45	8.15	0.00	0.00	0.00	0.00	0.00	0.00	0.02	77.16	0.00	158.81
Bermuda [a]	xxx	2.39	1.57	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.44	0.00	0.12	0.00	4.71
BES Islands [a]	xxx	xxx	0.11	0.27	0.11	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.01	0.00	0.00	3.61
Bhutan [a]	95.90	90.89	87.85	86.66	74.81	0.15	11.70	0.00	0.00	0.00	0.00	0.00	7.21	46.22	0.00	61.65
Bolivia (Plurinational State of) [b]	37.36	20.08	17.92	16.82	6.86	7.43	2.52	0.00	0.01	0.01	0.00	0.00	7.45	38.30	0.00	272.03
Bosnia and Herzegovina [b]	7.30	19.57	15.28	41.75	32.44	1.23	8.08	0.00	0.00	0.00	0.00	0.00	14.00	58.37	0.00	173.37
Botswana [b]	47.58	30.19	30.28	29.17	29.16	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	22.72	0.00	77.92
Brazil [b]	49.86	47.01	43.62	41.81	3.04	18.47	12.57	7.02	0.41	0.28	0.00	0.02	1,317.74	1,837.32	636.58	9,068.53
British Virgin Islands [a]	1.45	0.85	0.87	0.87	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.50
Brunei Darussalam [b]	0.67	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	38.39
Bulgaria [b]	1.92	14.37	15.75	16.97	8.28	2.62	2.64	1.22	0.76	0.94	0.38	0.13	15.69	42.68	4.52	370.63
Burkina Faso [a]	93.16	83.68	77.62	76.48	75.72	0.45	0.30	0.00	0.00	0.00	0.00	0.00	0.42	106.13	0.00	139.31
Burundi [a]	95.20	96.76	93.96	90.05	87.66	0.99	1.40	0.00	0.00	0.00	0.00	0.00	0.77	48.65	0.00	54.88
Cabo Verde [a]	36.63	21.74	24.40	26.20	23.06	0.26	0.00	0.00	2.67	0.20	0.00	0.00	0.18	1.49	0.00	6.39
Cambodia [b]	xxx	68.47	68.31	67.95	48.95	15.10	3.90	0.00	0.00	0.01	0.00	0.00	9.04	147.19	0.00	229.91
Cameroon [b]	81.59	78.60	78.14	77.39	65.46	6.63	5.29	0.00	0.00	0.00	0.00	0.00	14.67	196.79	0.00	273.25
Canada [b]	22.02	22.14	23.10	22.58	0.00	6.74	13.75	1.05	0.81	0.09	0.00	0.14	1,106.26	501.10	78.37	7,466.99
Cayman Islands [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50
Central African Republic [a]	93.49	79.81	78.02	77.19	39.57	34.75	2.87	0.00	0.00	0.00	0.00	0.00	0.50	13.04	0.00	17.54
Chad [a]	98.16	90.79	90.65	89.24	87.97	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.42	0.00	65.47
Chile [b]	34.03	27.03	30.33	26.42	0.00	18.30	7.40	0.00	0.46	0.23	0.00	0.02	98.54	169.17	0.00	1,013.48
China [b]	34.08	17.41	16.83	17.10	10.21	0.19	4.12	0.09	0.61	1.20	0.26	0.42	3,839.05	9,178.92	71.00	76,546.09
Chinese Taipei [b]	1.94	1.55	2.26	2.04	0.00	0.29	0.72	0.18	0.25	0.31	0.00	0.29	27.37	11.25	1.47	1,962.33
Colombia [b]	38.25	27.93	26.64	24.52	5.72	6.23	12.42	0.12	0.01	0.00	0.00	0.00	137.06	120.77	1.15	1,056.34
Comoros [a]	49.84	46.41	48.01	46.49	46.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.00	3.37
Congo (Dem. Rep. of) [b]	92.05	96.83	95.53	92.87	75.96	13.75	3.15	0.00	0.00	0.00	0.00	0.00	28.41	807.99	0.00	900.59
Congo (Rep. of) [b]	65.41	55.15	65.51	62.37	59.74	0.74	1.89	0.00	0.00	0.00	0.00	0.00	1.57	50.28	0.00	83.13
Cook Islands [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72
Costa Rica [b]	45.38	42.31	38.62	37.87	3.78	14.02	14.99	0.00	1.64	0.01	3.43	0.00	29.77	25.30	0.00	145.41
Côte d'Ivoire [b]	73.58	75.49	74.90	70.84	62.07	7.26	1.50	0.00	0.00	0.00	0.00	0.00	5.00	223.34	0.00	322.35
Croatia [b]	21.92	29.78	29.42	33.65	16.58	0.86	14.00	0.47	1.13	0.20	0.17	0.22	39.50	45.34	1.21	255.77
Cuba [b]	42.89	13.16	17.10	18.75	0.19	15.26	0.10	3.16	0.02	0.02	0.00	0.00	2.23	53.90	0.00	299.35
Curacao [b]	xxx	0.24	0.36	0.35	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.09	0.00	0.00	24.60
Cyprus [b]	0.50	6.35	8.35	9.39	0.45	0.99	0.00	0.71	1.05	5.39	0.11	0.70	1.04	3.91	0.40	57.02
Czech Republic [b]	2.88	9.74	11.13	12.75	0.00	8.49	0.49	1.44	0.12	0.62	0.00	1.58	21.84	82.50	13.26	922.19
Denmark [b]	7.04	21.35	27.28	30.22	0.00	15.66	0.01	1.93	8.48	0.59	0.01	3.53	61.61	88.38	9.67	528.35
Djibouti [a]	26.59	34.43	34.07	34.15	34.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16	0.00	6.33
Dominica [a]	14.60	8.66	9.40	9.87	3.80	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.10	0.06	0.00	1.62
Dominican Republic [b]	28.06	18.00	17.71	18.38	9.77	4.93	2.23	0.26	0.86	0.33	0.00	0.00	7.22	30.57	0.55	208.67
Ecuador [b]	24.20	12.11	13.10	12.22	1.96	2.85	7.27	0.06	0.05	0.01	0.02	0.00	38.05	22.95	0.32	501.88
Egypt [b]	8.50	5.72	5.69	6.41	1.88	1.96	2.31	0.00	0.22	0.04	0.00	0.00	47.75	71.70	0.00	1,862.77
El Salvador [b]	67.14	34.30	27.26	28.17	13.12	3.93	5.77	0.00	0.00	0.00	5.23	0.11	11.87	14.92	0.00	95.15
Equatorial Guinea [a]	84.71	5.92	6.00	6.38	5.54	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.58	3.83	0.00	69.12
Eritrea [b]	xxx	81.25	80.15	80.30	76.53	3.75	0.00	0.00	0.00	0.03	0.00	0.00	0.01	18.06	0.00	22.50
Estonia [b]	3.36	25.13	24.91	25.25	0.00	23.70	0.05	0.21	1.03	0.00	0.00	0.26	2.78	26.44	0.24	116.66

	Share in total final energy consumption (%)												Final use of renewable energy (petajoules)			Total final energy consumption (petajoules)
	Renewable energy				Solid biofuels: Traditional use	Solid biofuels: Modern use	Hydro	Liquid biofuels	Wind	Solar	Geothermal	Other (biogas, renewable waste, marine)	Electricity	Heat	Transport	
	1990	2010	2012	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014
Ethiopia [b]	96.64	94.53	93.76	92.72	90.46	0.83	1.36	0.01	0.06	0.00	0.00	0.00	23.49	1,505.27	0.21	1,649.04
Faeroe Islands [a]	2.54	3.38	4.70	6.54	0.00	0.00	5.08	0.00	1.45	0.00	0.00	0.00	0.52	0.00	0.00	7.95
Falkland Islands (Malvinas) [a]	1.13	3.71	3.79	3.87	0.82	0.00	0.00	0.00	3.06	0.00	0.00	0.00	0.02	0.01	0.00	0.67
Fiji [a]	53.09	29.77	32.94	37.57	1.37	29.64	6.49	0.00	0.07	0.00	0.00	0.00	1.33	6.28	0.00	20.25
Finland [b]	24.51	33.61	38.83	41.19	0.00	31.70	5.72	2.15	0.47	0.01	0.00	1.14	109.93	272.70	20.84	979.51
France [b,c]	10.41	11.87	12.37	13.13	0.00	6.19	3.01	2.17	0.83	0.36	0.08	0.49	245.42	367.76	121.68	5,595.64
French Guiana [a]	5.50	28.88	33.79	30.61	8.92	2.72	17.21	0.00	0.00	1.76	0.00	0.00	1.69	1.04	0.00	8.91
French Polynesia [a]	4.73	11.57	9.34	10.15	0.42	0.00	9.30	0.00	0.00	0.43	0.00	0.00	0.73	0.03	0.00	7.53
Gabon [b]	78.28	85.85	75.63	81.05	21.76	58.01	1.28	0.00	0.00	0.00	0.00	0.00	2.54	156.50	0.00	196.24
Gambia [a]	61.44	50.17	49.83	48.06	48.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.21	0.00	10.83
Georgia [b]	12.77	39.15	28.69	31.89	12.60	0.22	18.66	0.00	0.00	0.05	0.36	0.00	28.32	20.09	0.00	151.78
Germany [b]	2.10	10.29	12.02	13.38	0.00	4.71	0.72	1.52	2.09	1.64	0.05	2.65	482.50	488.53	116.79	8,130.88
Ghana [b]	80.63	49.86	44.34	45.22	28.58	8.08	8.55	0.00	0.00	0.00	0.00	0.00	23.73	101.65	0.00	277.28
Gibraltar [b]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00
Greece [b]	7.81	11.09	13.86	16.09	0.00	6.57	2.57	1.05	2.12	3.47	0.08	0.23	43.11	50.40	5.81	617.46
Greenland [a]	xxx	7.74	8.30	10.66	0.00	0.00	10.49	0.00	0.00	0.00	0.00	0.18	0.81	0.01	0.00	7.76
Grenada [a]	7.24	9.35	10.13	9.88	9.16	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	2.76
Guadeloupe [a]	6.75	3.52	3.97	4.55	0.48	0.00	0.36	0.00	0.89	1.57	1.24	0.00	0.96	xxx	0.00	18.13
Guam [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.68
Guatemala [b]	74.97	66.59	66.22	59.90	53.43	3.21	3.10	0.00	0.00	0.00	0.16	0.00	20.47	240.36	0.00	435.42
Guinea [a]	89.30	79.10	78.45	80.01	78.66	0.35	1.00	0.00	0.00	0.00	0.00	0.00	1.29	102.04	0.00	129.15
Guinea-Bissau [a]	88.58	87.81	87.61	87.06	79.34	7.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.36	0.00	26.83
Guyana [a]	42.41	33.84	28.26	24.02	4.58	19.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.40	0.00	26.67
Haiti [b]	81.12	79.02	83.16	78.39	74.36	3.94	0.10	0.00	0.00	0.00	0.00	0.00	0.13	102.53	0.00	130.96
Honduras [b]	70.13	53.16	48.78	54.04	43.38	6.45	3.65	0.00	0.56	0.00	0.00	0.00	8.76	87.02	0.00	177.23
Hong Kong (SAR, China) [b]	1.07	0.83	0.82	1.79	0.60	0.06	0.00	1.03	0.00	0.00	0.00	0.10	0.39	2.48	3.86	375.77
Hungary [b]	3.86	9.04	10.15	10.36	0.00	7.14	0.20	1.25	0.44	0.08	0.80	0.45	13.35	44.35	7.89	632.99
Iceland [b]	54.67	75.42	77.36	76.42	0.00	0.00	37.73	0.15	0.02	0.00	38.43	0.09	60.59	26.33	0.27	114.08
India [b]	58.65	39.48	38.39	36.54	26.60	7.60	1.62	0.07	0.46	0.17	0.00	0.02	525.51	7,333.72	14.32	21,550.03
Indonesia [b]	58.60	38.38	39.10	38.07	31.82	4.33	0.72	0.73	0.00	0.00	0.48	0.00	81.78	2,383.59	45.67	6,596.51
Iran (Islamic Rep. of) [b]	1.24	0.90	0.93	0.94	0.16	0.16	0.60	0.00	0.02	0.00	0.00	0.00	41.42	21.00	0.00	6,654.53
Iraq [b]	1.60	1.71	1.26	0.91	0.00	0.12	0.79	0.00	0.00	0.00	0.00	0.00	6.85	1.04	0.00	865.47
Ireland [b]	2.28	5.24	6.58	8.47	0.00	2.18	0.57	0.90	4.13	0.12	0.00	0.56	21.31	10.14	3.75	415.53
Isle of Man [a]	xxx	4.05	6.43	3.81	0.00	0.00	0.46	0.00	0.00	0.00	0.00	3.35	0.01	0.08	0.00	2.28
Israel [b]	5.80	8.50	8.66	9.34	0.00	0.07	0.01	0.00	0.00	9.23	0.00	0.04	2.80	46.43	0.00	526.91
Italy [b,d]	3.78	12.79	14.39	17.09	0.00	6.25	4.66	1.34	1.21	1.94	0.59	1.11	439.81	298.28	44.60	4,579.68
Jamaica [b]	7.63	13.72	17.04	15.99	8.65	5.09	0.42	1.46	0.36	0.00	0.00	0.00	1.06	11.43	1.26	86.00
Japan [b]	4.55	4.59	4.54	5.53	0.00	1.78	2.49	0.00	0.15	0.89	0.15	0.07	480.58	120.25	0.00	10,870.92
Jordan [b]	2.77	2.97	2.93	3.13	0.06	0.03	0.08	0.00	0.00	2.95	0.00	0.01	0.20	6.57	0.00	216.08
Kazakhstan [b]	1.41	1.38	1.33	1.36	0.06	0.00	1.30	0.00	0.00	0.00	0.00	0.00	19.54	0.92	0.00	1,501.79
Kenya [b]	77.50	76.27	78.50	75.52	71.83	0.07	1.62	0.00	0.02	0.00	1.98	0.00	22.56	439.36	0.00	611.66
Kiribati [a]	5.77	2.71	2.84	2.95	2.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.71
Korea (Dem. People's Rep. of) [b]	7.19	10.63	14.33	17.02	1.19	7.52	8.31	0.00	0.00	0.00	0.00	0.00	34.97	36.66	0.00	420.91
Korea (Rep. of) [b]	1.63	1.31	1.61	2.84	0.00	1.63	0.17	0.33	0.07	0.18	0.09	0.36	27.46	104.44	15.64	5,198.65
Kosovo [b]	xxx	20.92	20.86	21.46	18.82	1.70	0.91	0.00	0.00	0.03	0.00	0.00	0.47	10.54	0.00	51.29
Kuwait [b]	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	593.37
Kyrgyzstan [b]	7.93	25.59	22.45	28.25	0.08	0.01	28.16	0.00	0.00	0.00	0.00	0.00	36.09	0.12	0.00	128.18
Lao PDR [a]	94.93	88.01	88.28	90.34	72.85	0.00	16.65	0.00	0.00	0.84	0.00	0.00	12.64	52.64	0.00	72.25
Latvia [b]	17.57	33.06	40.37	40.24	15.03	16.71	5.81	0.64	0.41	0.00	0.00	1.64	12.93	49.73	1.01	158.24
Lebanon [b]	11.34	5.20	4.91	3.20	2.08	0.30	0.32	0.00	0.00	0.51	0.00	0.00	0.63	5.71	0.00	197.74
Lesotho [a]	52.03	53.45	52.32	51.82	47.37	0.00	4.44	0.00	0.00	0.00	0.00	0.00	2.47	26.30	0.00	55.52
Liberia [a]	88.24	89.29	85.85	89.82	10.80	79.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.61	0.00	74.16
Libya [b]	3.13	1.57	1.91	1.75	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.33	0.00	361.01
Liechtenstein [a]	xxx	58.69	61.92	62.18	5.97	0.00	28.29	0.00	0.00	21.11	0.00	6.81	1.34	0.39	0.00	2.78
Lithuania [b]	3.10	21.69	24.28	28.07	10.76	10.13	1.81	1.34	2.90	0.33	0.02	0.78	13.55	39.31	2.65	197.73
Luxembourg [b]	1.72	3.66	4.17	6.97	0.00	1.81	0.84	1.98	0.62	0.83	0.00	0.89	4.69	2.83	2.99	150.99
Macao (SAR, China) [a]	0.66	6.83	11.70	10.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.73	0.00	2.88	0.00	26.84
Macedonia (The former Yugoslav Rep. of) [b]	2.41	22.59	16.88	18.30	8.74	1.07	7.54	0.00	0.44	0.09	0.43	0.00	5.83	7.39	0.00	72.19
Madagascar [a]	85.91	81.93	76.70	73.56	32.19	39.36	2.01	0.00	0.00	0.00	0.00	0.00	2.43	86.28	0.00	120.58
Malawi [a]	84.03	79.73	81.16	80.58	34.37	37.11	9.10	0.00	0.00	0.00	0.00	0.00	5.85	45.99	0.00	64.34
Malaysia [b]	11.98	3.82	4.41	4.77	1.83	0.11	2.20	0.59	0.00	0.04	0.00	0.01	46.36	35.98	11.67	1,970.94
Maldives [a]	4.46	1.16	1.04	0.91	0.87	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.01	0.14	0.00	16.03
Mali [a]	88.15	84.86	85.14	83.56	77.98	2.11	3.47	0.00	0.00	0.00	0.00	0.00	2.07	47.72	0.00	59.59
Malta [b]	0.00	1.39	2.60	3.95	0.25	0.00	0.00	1.22	0.00	2.20	0.00	0.29	0.24	0.25	0.22	18.17
Marshall Islands [a]	xxx	0.00	0.26	0.23	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.27
Martinique [a]	2.13	2.63	2.49	2.43	0.30	0.95	0.00	0.00	0.03	0.75	0.00	0.39	0.01	0.44	0.00	18.37

	Share in total final energy consumption (%)												Final use of renewable energy (petajoules)			Total final energy consumption (petajoules)
					Solid biofuels											
	Renewable energy				Traditional use	Modern use	Hydro	Liquid biofuels	Wind	Solar	Geothermal	Other (biogas, renewable waste, marine)	Electricity	Heat	Transport	
	1990	2010	2012	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014
Mauritania [a]	47.00	34.00	31.84	32.58	32.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.10	0.00	40.22
Mauritius [b]	47.07	13.66	11.61	10.64	0.71	8.50	0.93	0.00	0.03	0.26	0.00	0.22	1.98	1.47	0.00	32.49
Mayotte [a]	33.41	9.96	12.24	11.73	9.58	0.00	0.00	0.00	0.00	2.14	0.00	0.00	0.05	0.28	0.00	2.83
Mexico [b]	14.41	9.36	8.96	9.80	0.00	6.30	2.50	0.00	0.41	0.19	0.39	0.01	159.32	299.83	0.00	4,685.77
Micronesia (Federated States of) [a]	xxx	1.84	1.59	1.32	0.34	0.64	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.02	0.00	1.66
Moldova (Rep. of) [b]	1.14	8.44	10.47	13.05	11.13	0.81	1.01	0.00	0.00	0.00	0.00	0.08	1.02	11.56	0.00	96.37
Monaco	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Mongolia [b]	1.89	4.35	3.54	3.97	2.50	1.06	0.00	0.00	0.42	0.00	0.00	0.00	0.58	5.00	0.00	140.67
Montenegro [b]	xxx	54.52	46.20	45.98	24.06	2.18	19.74	0.00	0.00	0.00	0.00	0.00	5.19	6.89	0.00	26.27
Montserrat [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51
Morocco [b]	19.48	14.50	11.47	11.78	4.10	5.51	1.00	0.00	1.17	0.00	0.00	0.00	12.85	56.83	0.00	591.64
Mozambique [b]	93.10	91.30	90.82	88.85	70.43	8.81	9.62	0.00	0.00	0.00	0.00	0.00	40.88	336.84	0.00	425.12
Myanmar [b]	90.91	85.02	78.95	68.52	63.21	2.09	3.22	0.00	0.00	0.00	0.00	0.00	22.51	456.94	0.00	699.71
Namibia [b]	xxx	26.37	28.56	27.62	6.21	1.72	19.58	0.00	0.00	0.11	0.00	0.00	13.37	5.49	0.00	68.31
Nauru [a]	0.00	0.08	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.42
Nepal [b]	95.12	87.29	84.70	84.38	78.19	0.87	2.90	0.00	0.00	0.00	0.00	2.41	14.01	393.15	0.00	482.55
Netherlands [b]	1.32	3.88	4.97	5.67	0.00	1.93	0.02	0.88	1.15	0.22	0.08	1.38	41.43	44.94	14.62	1,781.64
New Caledonia [a]	10.16	4.45	6.02	3.98	0.01	0.00	2.99	0.00	0.59	0.39	0.00	0.00	1.18	0.12	0.00	32.52
New Zealand [b]	30.02	31.24	30.77	30.86	0.00	7.99	14.66	0.03	1.33	0.08	6.57	0.20	110.06	53.42	0.18	530.28
Nicaragua [b]	68.77	52.64	52.08	51.84	39.04	7.51	1.10	0.00	2.35	0.00	1.84	0.00	6.45	43.77	0.00	96.87
Niger [b]	xxx	80.70	72.73	78.13	78.11	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	86.39	0.00	110.60
Nigeria [b]	87.78	86.78	86.45	87.27	81.11	5.84	0.32	0.00	0.00	0.00	0.00	0.00	15.48	4,192.00	0.00	4,820.96
Niue [a]	0.57	26.70	24.20	23.14	0.58	0.00	0.00	0.00	0.00	22.56	0.00	0.00	0.00	0.02	0.00	0.07
Northern Mariana Islands [a]	xxx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
Norway [b,e]	59.17	56.33	58.45	57.09	0.00	4.34	50.44	0.73	0.82	0.00	0.00	0.76	381.32	37.30	5.43	742.78
Oman [b]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	684.87
Pakistan [b]	57.50	46.30	46.17	47.21	39.17	4.89	3.10	0.00	0.04	0.00	0.00	0.00	93.94	1,318.03	0.00	2,991.12
Palau [a]	xxx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.92
Palestine (State of) [a]	22.08	14.06	12.24	10.53	5.98	0.42	0.00	0.00	0.00	4.12	0.00	0.00	0.00	6.77	0.00	64.29
Panama [b]	43.59	19.94	20.62	19.77	5.00	2.73	10.78	1.00	0.25	0.00	0.00	0.00	15.72	10.85	1.42	141.57
Papua New Guinea [a]	70.48	55.25	55.47	50.03	41.25	4.76	2.82	0.00	0.00	0.00	1.20	0.00	6.37	54.74	0.00	122.14
Paraguay [b]	78.51	64.25	62.68	63.12	19.16	23.55	18.15	2.26	0.00	0.00	0.00	0.00	35.26	83.01	4.34	194.26
Peru [b]	39.43	30.73	28.25	25.64	12.42	0.78	10.04	2.19	0.09	0.08	0.00	0.04	74.61	90.16	13.26	694.45
Philippines [b]	50.95	28.81	30.22	28.72	14.53	7.51	2.42	1.47	0.04	0.00	2.73	0.01	58.38	247.14	14.31	1,113.59
Poland [b]	2.50	9.51	10.94	11.55	0.00	8.90	0.25	1.18	0.87	0.03	0.03	0.28	56.73	203.56	29.54	2,509.90
Portugal [b]	26.95	27.83	25.52	30.50	0.00	13.34	7.89	1.86	6.14	0.84	0.11	0.32	98.84	78.68	10.92	617.88
Puerto Rico [a]	1.75	0.57	0.56	1.63	0.00	0.00	0.38	0.00	1.03	0.22	0.00	0.00	1.16	0.00	0.00	70.93
Qatar [b]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	559.67
Reunion [a]	37.52	16.45	16.91	16.79	1.47	7.20	3.60	0.00	0.13	4.10	0.00	0.29	1.45	5.06	0.00	38.73
Romania [b]	3.36	24.10	21.55	24.34	14.67	1.79	4.89	0.78	1.61	0.42	0.11	0.06	62.78	146.82	6.98	889.77
Russian Federation [b]	3.75	3.34	3.35	3.46	0.26	0.42	2.77	0.00	0.00	0.00	0.01	0.00	440.16	107.28	0.00	15,840.68
Rwanda [a]	84.27	90.66	89.03	88.45	80.26	7.40	0.79	0.00	0.00	0.00	0.00	0.00	0.62	67.94	0.00	77.51
Saint Barthelemy	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Saint Helena [a]	15.07	10.50	8.72	10.61	6.49	0.00	0.00	0.00	3.85	0.27	0.00	0.00	0.00	0.01	0.00	0.08
Saint Kitts and Nevis [a]	40.03	0.99	1.33	1.49	0.01	0.00	0.00	0.00	1.32	0.16	0.00	0.00	0.03	0.00	0.00	1.79
Saint Lucia [a]	5.47	2.20	2.18	2.15	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	3.79
Saint Martin (French part)	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Saint Pierre and Miquelon [a]	0.00	0.53	0.44	0.39	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.73
Saint Vincent and the Grenadines [a]	15.44	5.43	5.78	7.50	2.36	0.00	5.14	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.00	2.43
Samoa [a]	46.20	46.75	40.02	42.06	37.39	1.92	2.75	0.00	0.00	0.00	0.00	0.00	0.10	1.49	0.00	3.79
San Marino	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Sao Tome and Principe [a]	71.48	43.76	41.45	41.60	40.59	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.02	0.77	0.00	1.90
Saudi Arabia [b]	0.04	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	4,748.62
Senegal [b]	55.55	50.26	50.37	43.30	40.56	1.81	0.92	0.00	0.00	0.01	0.00	0.00	1.21	46.15	0.00	109.37
Serbia [b]	15.49	20.60	19.61	23.43	11.22	2.34	9.74	0.00	0.00	0.01	0.07	0.05	31.07	43.45	0.00	318.04
Seychelles [a]	4.25	0.63	0.63	1.03	0.56	0.00	0.00	0.00	0.43	0.04	0.00	0.00	0.02	0.03	0.00	5.13
Sierra Leone [a]	93.92	84.18	78.43	73.05	50.71	21.99	0.35	0.00	0.00	0.00	0.00	0.00	0.20	42.00	0.00	57.77
Singapore [b]	0.19	0.48	0.50	0.62	0.00	0.12	0.00	0.00	0.00	0.03	0.00	0.48	2.78	0.00	0.00	446.88
Sint Maarten (Dutch part) [a]	xxx	xxx	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.06
Slovak Republic [b]	2.23	10.28	10.47	12.14	0.00	5.85	3.62	1.51	0.01	0.58	0.04	0.54	19.96	19.64	5.60	372.32
Slovenia [b]	12.35	19.61	19.84	22.68	0.00	11.79	8.29	0.96	0.01	0.59	0.67	0.37	17.28	24.44	1.83	192.04
Solomon Islands [a]	59.01	64.61	63.53	62.96	62.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.00	5.08
Somalia [a]	91.88	93.57	93.75	93.86	67.58	26.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.62	0.00	97.62
South Africa [b]	16.63	17.09	16.64	16.59	13.32	2.82	0.09	0.00	0.10	0.25	0.00	0.00	9.92	479.69	0.00	2,951.72
South Sudan [b]	xxx	xxx	30.20	29.83	27.38	2.42	0.00	0.00	0.00	0.03	0.00	0.00	0.01	6.78	0.00	22.75
Spain [b]	10.54	14.40	15.77	17.35	0.00	5.41	3.73	1.30	4.95	1.65	0.03	0.29	327.65	173.80	40.04	3,120.65

	Share in total final energy consumption (%)												Final use of renewable energy (petajoules)			Total final energy consumption (petajoules)
					Solid biofuels											
	Renewable energy				Traditional use	Modern use	Hydro	Liquid biofuels	Wind	Solar	Geothermal	Other (biogas, renewable waste, marine)	Electricity	Heat	Transport	
	1990	2010	2012	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014	2014
Sri Lanka [b]	78.09	61.84	60.69	57.59	33.20	20.33	3.82	0.00	0.23	0.02	0.00	0.00	15.52	202.73	0.00	379.02
Sudan [b]	73.27	61.44	59.82	62.42	36.96	19.02	6.44	0.00	0.00	0.00	0.00	0.00	27.39	238.27	0.00	425.63
Suriname [b]	xxx	24.54	23.05	25.38	6.16	1.79	17.44	0.00	0.00	0.00	0.00	0.00	4.39	2.00	0.00	25.16
Swaziland [a]	85.25	62.68	63.03	63.55	21.06	37.34	5.15	0.00	0.00	0.00	0.00	0.00	1.95	22.14	0.00	37.91
Sweden [b]	34.06	45.98	49.90	49.54	0.00	26.79	14.59	2.86	2.57	0.05	0.00	2.69	245.67	337.79	37.03	1,252.56
Switzerland [b,f]	17.11	21.49	22.99	23.45	0.00	4.59	14.77	0.10	0.04	0.62	1.66	1.68	120.02	57.49	0.76	760.15
Syrian Arab Republic [b]	2.36	1.41	2.56	2.99	0.00	0.10	2.90	0.00	0.00	0.00	0.00	0.00	7.83	0.26	0.00	270.36
Tajikistan [b]	29.64	61.84	56.07	40.71	0.00	0.00	40.71	0.00	0.00	0.00	0.00	0.00	42.91	0.00	0.00	105.40
Tanzania (United Rep. of) [b]	94.78	90.32	86.35	86.67	66.92	18.91	0.83	0.00	0.00	0.01	0.00	0.00	7.58	769.46	0.00	896.51
Thailand [b]	33.64	22.65	23.29	23.59	9.19	10.68	0.64	2.01	0.04	0.16	0.00	0.88	55.20	602.84	61.20	3,049.44
Timor-Leste [a]	xxx	33.89	25.08	19.00	19.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.00	5.31
Togo [b]	78.70	65.83	72.74	72.83	59.86	9.00	3.97	0.00	0.00	0.00	0.00	0.00	3.65	60.59	0.00	88.20
Tonga [a]	1.49	1.01	1.13	1.63	1.03	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.01	0.01	0.00	1.30
Trinidad and Tobago [b]	1.19	0.33	0.32	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	176.02
Tunisia [b]	14.48	12.69	13.08	12.92	11.58	0.22	0.05	0.00	0.47	0.61	0.00	0.00	1.69	38.40	0.00	310.21
Turkey [b]	24.57	14.35	12.84	11.58	0.00	3.91	3.55	0.18	0.74	1.00	2.06	0.13	154.51	228.71	6.07	3,362.25
Turkmenistan [b]	0.28	0.07	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	746.40
Turks and Caicos Islands [a]	1.79	0.52	0.51	0.58	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.11
Tuvalu [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Uganda [a]	96.04	91.98	91.36	89.22	87.53	0.00	1.68	0.00	0.00	0.00	0.00	0.00	6.84	356.05	0.00	406.76
Ukraine [b]	0.65	2.88	2.86	3.50	1.85	0.53	0.89	0.07	0.12	0.04	0.00	0.00	25.82	57.34	1.72	2,426.68
United Arab Emirates [b]	0.00	0.12	0.12	0.17	0.00	0.12	0.00	0.00	0.00	0.05	0.00	0.00	0.94	2.37	0.00	1,971.75
United Kingdom of Great Britain and Northern Ireland [b]	0.65	3.69	4.82	7.29	0.00	2.68	0.39	0.97	2.14	0.32	0.00	0.79	212.48	94.76	47.12	4,857.84
United States of America [b]	4.18	7.51	8.48	8.91	0.00	3.46	1.39	2.50	0.98	0.29	0.12	0.18	1,766.71	2,084.79	1,440.88	59,375.95
United States Virgin Islands [a]	0.00	0.00	0.08	0.77	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.00	0.02	0.00	0.00	2.31
Uruguay [b]	44.81	52.82	46.92	55.43	7.10	30.19	15.68	1.27	1.19	0.00	0.00	0.00	33.17	60.60	1.88	172.55
Uzbekistan [b]	1.33	2.64	2.38	2.90	0.00	0.01	2.88	0.00	0.00	0.00	0.00	0.00	35.26	0.17	0.00	1,223.02
Vanuatu [a]	24.16	38.38	40.30	32.43	30.24	0.00	0.86	0.93	0.37	0.02	0.00	0.00	0.03	0.84	0.00	2.68
Venezuela (Bolivarian Rep. of) [b]	11.98	11.44	12.24	12.30	0.51	1.19	10.60	0.00	0.00	0.00	0.00	0.00	191.05	30.60	0.00	1,802.40
Viet Nam [b]	76.08	34.80	38.11	36.20	22.20	5.12	8.86	0.00	0.01	0.00	0.00	0.00	196.29	603.41	0.00	2,209.11
Wallis and Futuna Islands [a]	xxx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
Yemen [b]	2.15	0.96	1.33	1.06	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	0.00	222.94
Zambia [b]	82.98	92.10	88.63	88.09	56.91	19.95	11.23	0.00	0.00	0.00	0.00	0.00	37.50	256.65	0.00	333.93
Zimbabwe [b]	63.98	82.88	78.02	81.13	71.32	5.44	4.07	0.29	0.00	0.00	0.00	0.00	16.50	302.65	1.15	394.79
World [a,b]	**16.66**	**17.51**	**17.91**	**18.33**	**8.44**	**4.21**	**3.24**	**0.89**	**0.60**	**0.50**	**0.16**	**0.28**	**15,962.75**	**46,908.37**	**3,093.59**	**359,946.24**
Africa [a,b]	60.25	57.48	56.54	56.97	48.87	6.24	1.67	0.01	0.08	0.05	0.06	0.00	386.25	12,027.03	1.37	21,789.66
Africa (excluding North Africa) [a,b]	70.89	71.88	70.69	70.47	61.45	7.16	1.70	0.01	0.03	0.05	0.07	0.00	310.01	11,588.05	1.37	16,886.26
North Africa [a,b]	15.72	11.46	10.06	10.51	5.55	3.08	1.57	0.00	0.25	0.05	0.00	0.00	80.24	434.99	0.00	4,903.40
Arab region [a,b]	6.54	4.23	3.59	3.60	1.81	1.02	0.60	0.00	0.08	0.09	0.00	0.00	103.51	453.54	0.00	15,483.15
Arab Least Developed Countries (LDCs) [a,b]	56.61	41.95	42.15	40.82	24.74	12.10	3.98	0.00	0.00	0.00	0.00	0.00	24.22	256.92	0.00	688.78
Arab North Africa [a,b]	7.21	5.48	4.81	4.54	2.59	1.29	0.26	0.00	0.33	0.07	0.00	0.00	10.65	106.35	0.00	2,574.78
Gulf Cooperation Council Countries (GCC) [a,b]	0.03	0.03	0.03	0.04	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.93	2.67	0.00	8,742.87
Mashreq [a,b]	5.36	4.20	4.12	4.47	1.24	1.12	1.68	0.00	0.12	0.31	0.00	0.00	63.69	91.62	0.00	3,476.71
Asia Pacific [a,b]	22.96	18.26	18.06	18.26	11.42	2.12	3.05	0.15	0.38	0.66	0.23	0.24	6,551.95	24,340.73	253.69	170,583.06
East and North-East Asia [a,b]	23.27	14.52	14.31	14.88	8.36	0.49	3.70	0.10	0.52	1.10	0.23	0.38	4,436.75	9,396.90	90.51	93,579.85
North and Central Asia [a,b]	3.59	3.51	3.39	3.54	0.33	0.34	2.86	0.00	0.00	0.00	0.01	0.00	561.85	146.49	0.01	19,982.32
South and South-West Asia [a,b]	48.81	31.53	30.69	29.52	21.43	5.48	1.77	0.06	0.35	0.19	0.19	0.06	866.28	9,935.65	20.39	36,661.29
South-East Asia [a,b]	51.50	31.48	32.40	31.33	22.37	5.23	2.29	0.83	0.01	0.04	0.38	0.18	488.92	4,526.81	132.84	16,432.04
The Pacific [a,b]	13.37	13.15	12.91	13.82	1.43	5.75	3.56	0.25	0.97	0.73	0.92	0.21	227.07	305.95	9.94	3,927.56
Europe, North America, and Central Asia [a,b]	5.88	9.97	10.83	11.50	0.36	4.21	3.15	1.60	1.06	0.48	0.18	0.45	7,141.14	6,590.62	2,127.42	137,935.89
North America [a,b]	6.16	9.07	10.13	10.44	0.00	3.83	2.77	2.34	0.96	0.26	0.10	0.17	3,007.21	2,451.66	1,519.25	66,842.94
Western and Central Europe [a,b]	7.30	13.59	15.21	16.79	0.11	7.11	3.87	1.47	1.85	0.93	0.25	1.21	3,258.92	3,173.23	586.50	41,794.37
South-East Europe [a,b]	6.86	23.29	21.65	26.05	14.37	1.83	7.67	0.63	0.93	0.38	0.15	0.08	181.14	375.95	13.78	2,191.75
Eastern Europe, Caucasus, and Central Asia [a,b]	3.89	4.84	4.70	4.76	0.51	0.89	2.64	0.03	0.10	0.31	0.26	0.02	749.82	533.85	7.90	27,106.84
Latin America and Caribbean [a,b]	32.62	28.51	27.52	27.15	4.27	10.75	8.50	3.02	0.31	0.16	0.13	0.01	2,430.33	3,363.57	712.24	23,961.41
Latin America [a,b]	32.33	28.85	27.74	27.36	3.89	10.90	8.84	3.10	0.32	0.16	0.13	0.01	2,417.08	3,159.48	710.43	22,979.53
Caribbean [a,b]	36.54	20.78	22.54	22.32	13.03	7.27	0.58	1.15	0.22	0.08	0.00	0.00	11.28	206.07	1.81	981.88
Low income [a,b]	67.38	79.69	79.71	80.68	69.01	8.68	2.80	0.02	0.01	0.00	0.00	0.16	214.60	5,822.88	1.37	7,484.91
Lower middle income [a,b]	44.58	40.69	40.62	40.13	31.53	5.75	2.23	0.15	0.23	0.08	0.16	0.01	1,464.32	19,575.80	76.02	52,619.05
Upper middle income [a,b]	26.50	18.01	17.24	17.33	7.99	2.55	4.25	0.69	0.48	0.84	0.24	0.30	6,233.64	13,947.12	821.50	121,180.90
High income [a,b]	6.06	9.05	9.84	10.44	0.10	3.99	2.98	1.41	0.93	0.47	0.14	0.41	8,006.91	6,567.09	2,189.76	160,531.58

a. Data are from the United Nations.
b. Data are from the International Energy Agency.
c. Includes Monaco.
d. Includes San Marino.
e. Includes Svalbard and Jan Mayen Islands.
f. Includes oil data for Liechtenstein.

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Global chapters

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For the **Asia Pacific** region, a technical workshop was organized by UN ESCAP in Bangkok, Thailand on 16 January 2017, with the following participants from 26 countries: Hayk Harutyunyan, Deputy Minister, Ministry of Energy Infrastructures and Natural Resources, Armenia; Vugar Jabbarov, Adviser, Ministry of Energy, Azerbaijan; Lutfar Rahman, General Manager, Bangladesh Oil, Gas and Mineral Corporation (Pertobangla), Bangladesh; Satchi, Chief Engineer of Planning and Coordination Division, Department of Renewable Energy, Ministry of Economic Affairs, Bhutan; Sovatha Sok, Chief of Policy and Planning Office, Department of Cooperation and ASEAN Affairs, Ministry of Mines and Energy,

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For the **Europe, North America and Central Asia region**, UNECE organized virtual consultations that took place between 12 December 2016 and 22 February 2017, and responses were received from the following participants from 12 countries: Mariela A. Stefanllari, President, Human Environment Culture Foundation, Albania; Olga Dovnar, Deputy Chairperson, International Cooperation Unit, National Statistical Committee, Belarus; Andrei Miniankou, Head of Department, Department for Energy Efficiency, State Committee on Standardization, Belarus; Vladimir Zui, Professor, Belarusian State University, Belarus; Valentina Ilieva, Official, Energy Strategies and Policies for Sustainable Energy Development Directorate, Ministry of Energy, Bulgaria; Zlatko Pavicic, Independent Expert, Croatia; Matija Vajdic, Senior Researcher, Energy Institute Hrvoje Pozar, Croatia; Sigurd Heiberg, Chairperson, Petronavit AS, Norway; Margalita Arabidze, Head of Energy Efficiency and Renewable Energy Division, Ministry of Energy, Georgia; Anna Sikharulidze, Technical Manager, Sustainable Development Centre Remissia, Georgia; Gogita Todradze, Deputy Executive Director, National Statistics Office, Georgia; Tahmina Mahmud, Independent Expert, Tajikistan; Maksym Chepeliev, Research Economist, Center for Global Trade Analysis, Department of Agricultural Economics, Purdue University, United States (for Ukraine). In addition, the following UNECE country representatives participated in the technical workshop organized by UN ESCAP in Bangkok, Thailand on 16 January 2017: Hayk Harutyunyan, Deputy Minister, Ministry of Energy Infrastructures and Natural Resources, Armenia; Vugar Jabbarov, Adviser, Ministry of Energy, Azerbaijan; Margalita Arabidze, Head of Energy Efficiency and Alternative Energy Division, Ministry of Energy, Georgia; Bekbergen Kerey, Deputy Director of Department of International Cooperation and Economic Integration Processes, Ministry of Energy, Kazakhstan; Aleksey Ponomarev, Vice President, Industrial Cooperation and Public Programs, Skolkovo Institute of Science and Technology, Skolkovo Innovation Center, Russian Federation; Ulugbek Agzamov, Head of Division of the Department for UN and International Organizations Affairs, Ministry of Foreign Affairs, Uzbekistan.

For the **Latin America and Caribbean** region, a technical workshop was organized

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Data sources

The report draws on two metadatabases of global household surveys, an electrification database managed by the World Bank and a database on access to clean fuels and technologies managed by the World Health Organization.

The report is based on energy balances data provided by the IEA's Energy Data Center (IEA World energy balances, 2016) and UN Statistics Division. Gross domestic product and value added data are provided by the World Development Indicators of the World Bank. Population data come from the United Nations Population Division.

The report's renewable energy chapter benefited from significant new data processing and automation by Roberta Quadrelli and Remi Gigoux (IEA's Energy Data Center), Yasmina Abdelilah (IEA's Renewable Energy Division) and Ralf Becker and Leonardo Souza (UN Statistics Division).

The energy efficiency chapter used modelling results for transport intensities from IEA's Mobility Model (MoMo), provided by Pierpaolo Cazzola and Renske Schuitmaker (IEA's Transport Unit of the Energy Technology Policy Division in the Directorate of Sustainability, Technology and Outlooks).

Review and consultation

The public consultation and peer review process was coordinated by Vivien Foster (World Bank) and Martin Hullin (REN21) and benefited from use of the REN21 online consultation platform.

Substantive comments were also provided by Atul Raturi (University of the South Pacific), Baradwaj Kummamuru Venkata (World Bioenergy Association), Mariela Stefanllari, Yamina Saheb (Openexp), Zoe Lagarde (IPEEC), Andrew Scott (Overseas Development Institute), Parthan Binu (Sustainable Energy Associates), David Lecoque (Alliance for Rural Electrification), Dipti Vaghela (Hydro Empowerment Network), Davida Wood (WRI), Ernesto Elenter (SEG), Emmanuel Ackom (UNEP DTU Partnership), Galyna Trypolska (Institute for Economics and Forecasting, Ukrainian National Academy of Sciences), Gianluca Sambucini and Oleg Dzioubinski (United Nations Economic Commission for Europe, UNECE), Gogita Todradze (National Statistics Office of Georgia), Hannah E. Murdock (REN21), Litvinyuk Igor (International Institute of Energy Policy and Diplomacy of MGIMO University, Jessie Durret (Global Alliance for Clean Cookstoves), John Hauge (Global LPG Partnership, Inc.), Seijin Kim and Elena Virkkala Nekhaev (World Energy Council), Mareike Britten (Hivos), Maria Cristina Silva (Ministry of Energy, Chile), Olola Vieyra-Mifsud (Advisory Role to the Benin Government), Peter Boait (De Montfort University), Paul Munro (University of South Wales), Reid Detchon (United Nations Foundation), Kimberly Roseberry (United Nations Economic and Social Commission for Asia Pacific, UN ESCAP), Radia Sedaoui (United Nations Economic and Social Commission for Western Asia, UN ESCWA), Tara Shine (Tara Shine International Environment and Development Consultancy), Uliana Pysmenna (Institute for Economy and Forecasting), Vanesa Castan Broto (Bartlett Development Planning Unit, University College London), Radoslav Vukas (Ministry of Mining and Energy, Serbia), Yasmina Abdelilah (IEA), Zitouni Ould-Dada (UNEP).

The World Bank's internal peer review process was led by Riccardo Puliti, with contributions from Marianne Fay, Neil Fantom, Gabriela Elizondo, Dana Rysankova, and Ashok Sarkar (World Bank), and Jane Olga Ebinger (SEforALL).

The International Energy Agency's internal review process involved Kamel Ben Naceur, Rebecca Gaghen, Hannah Daly, Dan Dorner, Paolo Frankl, Adam Brown, Heymi Bahar, Yasmina Abdelilah, Roberta Quadrelli, Tyler Bryant, Jae Sik Lee, Samuel Thomas, Pierpaolo Cazzola, Renske Schuitmaker, Gianluca Tonolo, Urszula Ziebinska, Melanie Slade and David Morgado.

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GTF

Visit the Global Tracking Framework website to download data and reports, as well as customized maps, comparative graphics, timelines, and country reports.

http://GTF.esmap.org

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International Renewable Energy Agency

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