Sustainable Energy Statistics

What is needed for national and international reporting

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Part I – Statistics in support of SDG Goal 7

What are sustainable energy statistics according to SDG 7?

- According to UN Sustainable Development Goal 7, sustainable energy statistics measure
  - access to affordable, reliable and modern energy services
  - the share of renewable energy in the global energy mix
  - the rate of improvement in energy efficiency

SDG 7 Indicators

- 7.1.1 - Proportion of population with access to electricity
- 7.1.2 - Proportion of population with primary reliance on clean fuels and technology
- 7.2.1 - Renewable energy share in the total final energy consumption
- 7.3.1 - Energy intensity measured in terms of primary energy and GDP

Indicator 7.1.1: Proportion of population with access to electricity

Country status (2014)	Methodology	Possible national data sources
Azerbaijan – 100% Belarus – 100% Georgia – 100% Kazakhstan – 100% Kyrgyzstan – 100% **Source:** http://gtf.esmap.org/	**Definition:** Percentage of population with access to electricity **Geographic scope:** National and sub-national **Notes:** Given that access to electricity is universal in the target countries, the relevance of this indicator is possibly low. **For more information:** https://unstats.un.org/sdgs/metadata/files/Metadata-07-01-01.pdf and http://gtf.esmap.org/data/files/download-documents/gtf-2013-full-report.pdf (page 82-87).	**Population with access to electricity:** Possibly available from household surveys conducted by NSO. Administrative data from electric power utilities or energy regulators may also be useful. **Total population:** Available from NSO
Rationale		
Ensuring equitable access to modern energy services for the public, including access to adequate electricity supply and clean energy for cooking, heating and lighting, is essential to meeting basic human needs and enabling sustainable development. All households and public institutions should have fair access to markets for modern energy sources.		

Indicator 7.1.2: Proportion of population with primary reliance on clean fuels

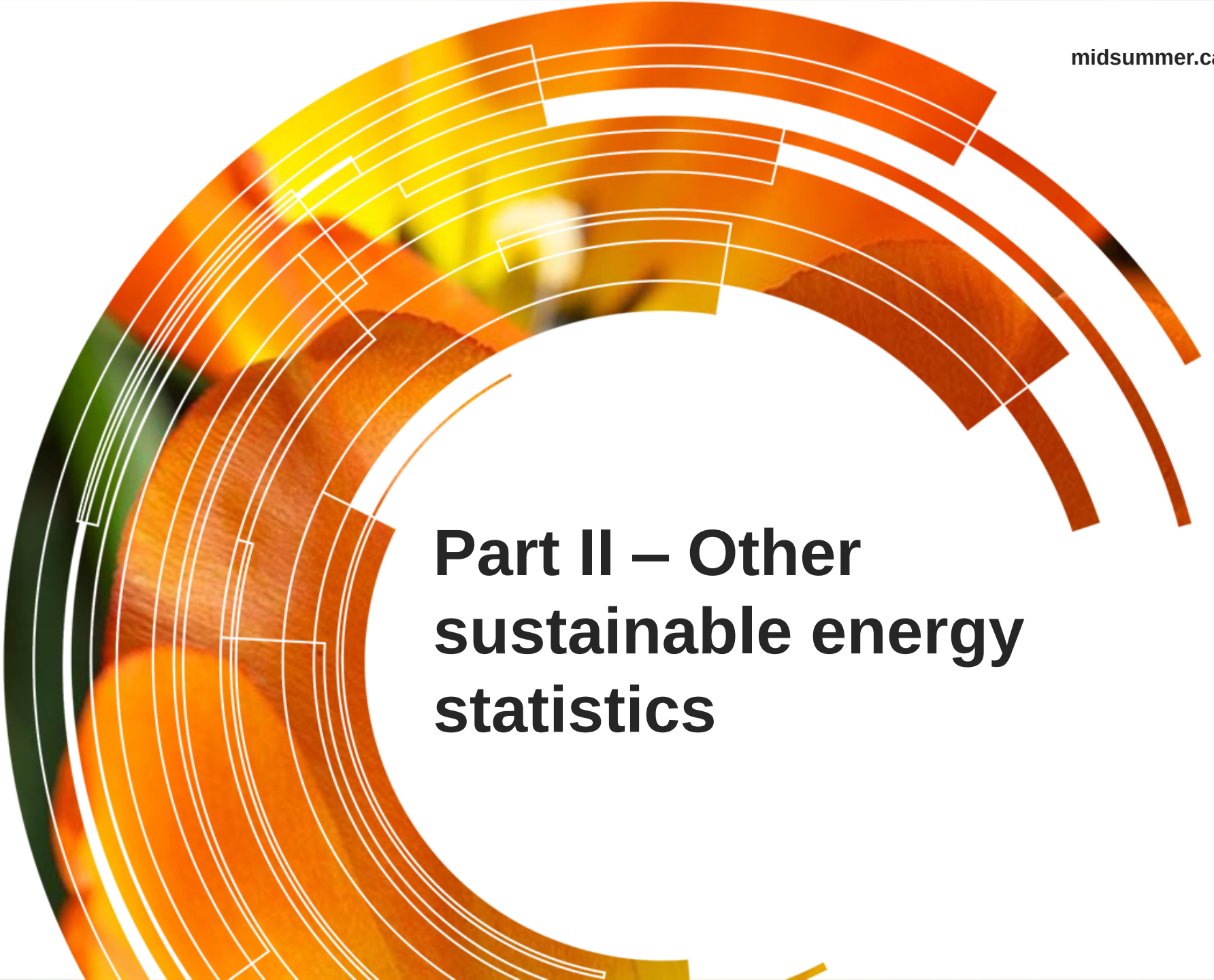
Country status (2014)	Methodology	Possible national data sources
Azerbaijan – 97% Belarus – 100% Georgia – 55% Kazakhstan – 92% Kyrgyzstan – 76% **Source:** http://gtf.esmap.org/	**Definition:** The number of people using "clean" fuels and technologies for cooking, heating and lighting divided by total population. **Geographic scope:** National and sub-national **Notes:** "Clean" fuels are non-solid fuels. **For more information:** https://unstats.un.org/sdgs/metadata/files/Metadata-07-01-02.pdf	**Number of people relying on solid fuels for cooking, heating and lighting:** Data on primary household fuels and technologies, particularly for cooking, may be collected at the national levels through censuses and household surveys conducted by the NSO **Total population:** Available from NSO
Rationale		
Ensuring equitable access to modern energy services for the public, including access to adequate electricity supply and clean energy for cooking, heating and lighting, is essential to meeting basic human needs and enabling sustainable development. All households and public institutions should have fair access to markets for modern energy sources.		

Indicator 7.2.1: Renewable energy share in total final energy consumption

Country status (2014)	Methodology	Possible national data sources
Azerbaijan – 2% Belarus – 7% Georgia – 32% Kazakhstan – 1% Kyrgyzstan – 28% **Source:** http://gtf.esmap.org/	**Definition:** Percentage of final consumption of energy that is derived from renewable resources (hydro, fuelwood/charcoal, animal waste, vegetable waste, black liquor, bagasse, wind, solar PV and thermal, liquid biofuels, biogas, geothermal, marine and municipal waste). **Geographic scope:** National **Notes:** Methodology requires allocation of final electricity and heat consumption by production technology. In practice, this is done by assuming that final use shares are identical to production shares, which is not necessarily the case. This assumption is particularly problematic when a country imports a large amount of energy of a type different from what it produces. (**Example**: if total final consumption of biogas, electricity and heat are 150 TJ, 400 TJ and 100 TJ and biogas is used to produce 10% of electricity and 5% of heat, total biogas consumption will be 195 TJ: 150 TJ+400TJ*10%+100TJ*5%). **For more information:** https://unstats.un.org/sdgs/metadata/files/Metadata-07-02-01.pdf and http://gtf.esmap.org/data/files/download-documents/gtf-2013-full-report.pdf (page 195-200 and Annex I).	**Final energy consumption:** Available from national energy balances as total final energy consumption minus non-energy use of energy products. **Final consumption of renewable energy:** Equal to final consumption of renewable energy products plus the renewable share of final electricity and heat consumption. Data are available from national energy balances.
Rationale		
Renewable energy is one way to reduce the carbon intensity of the energy sector. Renewable energy: reduce the use of fossil fuels and their environmental consequences; improves energy security, and encourages economic development, innovation, and high-tech manufacturing.		

Indicator 7.3.1: Energy intensity measured in terms of primary energy and GDP

Country status (2014)	Methodology	Possible data sources
Azerbaijan – 4 MJ/$ Belarus – 7 MJ/$ Georgia – 6 MJ/$ Kazakhstan – 8 MJ/$ Kyrgyzstan – 9 MJ/$ **Source:** http://gtf.esmap.org/	**Definition:** Total primary energy supply (TPES) per unit of real (inflation-adjusted) GDP **Geographic scope:** National and provinces/states **Notes:** TPES equals production plus imports minus exports minus international marine and aviation bunkers plus or minus stock changes Ideally, two versions of this indicator should be compiled, one using real GDP measured in national currency units and the other measured in $US (converted at purchasing power parity) **For more information:** https://unstats.un.org/sdgs/metadata/files/Metadata-07-03-01.pdf	**TPES:** NSO, Ministry of Energy or other national government source. Alternatively, should be available from the IEA **Real GDP in national currency units:** NSO or other national government source. Alternatively, can be calculated by dividing GDP in nominal values by the implicit price index for GDP published by the NSO. **Real GDP in $US at purchasing power parity:** Available from the World Bank, World Development Indicators
Rationale		
Reducing energy intensity is the best way to make more out of existing energy resources, support economic growth and reduce the energy costs for all citizens. Attempts to improve energy efficiency often fall short because of: national policies that artificially lower energy prices and encourage wasteful consumption; subsidies that distort markets; inadequate norms and standards; and incomplete statistics		



Part II – Other sustainable energy statistics

Proportion of population with access to natural gas

Country status (2014)	Methodology	Possible data sources
Unknown	**Definition:** Percentage of population with access to natural gas **Geographic scope:** National and sub-national **Notes:** Ideally, the indicator would be broken down by rural/urban households	**Population with access to natural gas:** Possibly available from household surveys conducted by NSO. Administrative data from gas utilities or energy regulators may also be useful. **Total population:** Available from NSO

Prices for main energy products

Country status (2014)	Methodology	Possible data sources
Unknown	**Definition:** Average retail prices paid for electricity, coal, natural gas, heating fuel, petrol and diesel fuel **Geographic scope:** National and sub-national **Notes:** Ideally, the indicator would be broken down by rural/urban households	**Prices:** Possibly available from price surveys conducted by NSO. Administrative data from gas utilities or energy regulators may also be useful.
Rationale		
Energy prices play a major role in determining the equity of energy accessibility.		

Spending on energy as a share of household disposable income

Country status (2014)	Methodology	Possible data sources
Unknown	**Definition:** Share of household disposable income devoted to spending on energy products **Geographic scope:** National and sub-national **Notes:** Ideally, the indicator would be broken down by household income quintile	**Household spending on energy products:** Possibly available from household expenditure surveys conducted by NSO **Household disposable income:** Available from NSO
Rationale		
The share of disposable income represented by spending on energy prices play a major role in determining the equity of energy accessibility.		

Average number of days with electrical outages

Country status (2014)	Methodology	Possible data sources
Unknown	**Definition:** Average number of days per year with electric power outages of any duration **Geographic scope:** National and sub-national **Notes:** Ideally, the indicator would be broken down by rural/urban areas	**Power outages:** Possible available from electricity utilities or regulators
Rationale		
Electrical outages are an indicator of the reliability of energy supply and a key determinant of the equity of energy access		

Investment in energy production and distribution infrastructure

Country status (2014)	Methodology	Possible data sources
Unknown	**Definition:** Annual gross fixed capital formation in energy production and distribution systems by energy type (electricity/fossil fuel) as a share of total national gross fixed capital formation **Geographic scope:** National and sub-national **Notes:** Ideally, the indicator would be broken down by rural/urban areas	**Investment in energy production and distribution infrastructure:** Possibly available capital stock investment surveys compiled the NSO. Administrative data from energy regulators may also be useful. **National gross fixed capital formation:** Available from the NSO
Rationale		
Investment in energy production and distribution systems is an indicator of the reliability of energy supply and a key determinant of the equity of energy access		

Energy intensity measured in terms of final energy use and industrial value added

Country status (2014)	Methodology	Possible data sources
Unknown **Rationale** Reducing energy intensity is the best way to make more out of existing energy resources, support economic growth and reduce the energy costs for all citizens. Attempts to improve energy efficiency often fall short because of: national policies that artificially lower energy prices and encourage wasteful consumption; subsidies that distort markets; inadequate norms and standards; and incomplete statistics	**Definition:** Final energy use by per unit of real (inflation-adjusted) value added by sector **Geographic scope:** National and provinces/states **Notes:** Ideally, two versions of this indicator should be compiled, one using real GDP measured in national currency units and the other measured in $US (converted at purchasing power parity)	**Real GDP in national currency units:** NSO or other national government source. Alternatively, can be calculated by dividing GDP in nominal values by the implicit price index for GDP published by the NSO. **Real GDP in $US at purchasing power parity:** Available from the World Bank, World Development Indicators **Final energy use by sector:** NSO, Ministry of Energy or other national government source. Alternatively, should be available from the IEA

Investment in energy efficient technologies

Country status (2014)	Methodology	Possible data sources
Unknown **Rationale** Investment in new technologies that reduce energy consumption is key to improving energy efficiency, reducing carbon emissions and ensuring energy sustainability	**Definition:** Investment in technologies to improve energy efficiency (e.g. improved coal combustion equipment for electric power plants) **Geographic scope:** National and provinces/states **Notes:** Ideally, two versions of this indicator should be compiled, one using real GDP measured in national currency units and the other measured in $US (converted at purchasing power parity) Ideally, separate Indicators should be compiled for the public and private sectors	**Investment in energy efficient technologies:** Data may be available from specialized business surveys conducted by the NSO (such as environmental protection surveys)

Investment in renewable energy technologies

Country status (2014)	Methodology	Possible data sources
Unknown **Rationale** Investment in renewable energy technologies is key to reducing carbon emissions and ensuring energy sustainability	**Definition:** Investment in renewable energy production infrastructure **Geographic scope:** National **Notes:** Ideally, two versions of this indicator should be compiled, one using real GDP measured in national currency units and the other measured in $US (converted at purchasing power parity) Ideally, separate Indicators should be compiled for the public and private sectors	**Investment in renewable energy production infrastructure:** Data may be available from specialized business surveys conducted by the NSO (such as environmental protection surveys)

Energy-related subsidies

Country status (2014)	Methodology	Possible data sources
Unknown **Rationale** Subsidies are a means of encouraging/discouraging investment in particular areas of the economy. Typically, energy subsidies have been directed at supporting development of the fossil fuel industry, which is no longer environmentally sustainable. Increasingly, they are being used to encourage investment in renewable energy to reduce carbon emissions.	**Definition:** Government spending on subsidies to businesses and households related to energy production or consumption **Notes:** Ideally, two versions of this indicator should be compiled, one using real GDP measured in national currency units and the other measured in $US (converted at purchasing power parity) Ideally, separate Indicators should be compiled for the public and private sectors	**Energy-related subsidies:** Data may be available from the public accounts of the national government or from the accounts of the energy ministry International organizations like the International Institute for Sustainable Development might also be sources

Energy-related taxes

Country status (2014)	Methodology	Possible data sources
Unknown **Rationale** Taxes on energy products are a means of encouraging/discouraging consumption in particular areas of the economy. Typically, energy taxes have been directed at collection of funds to support development of transportation infrastructure such as roads. Increasingly, they are being used to discourage consumption of carbon-intensive energy products.	**Definition:** Government tax revenues from energy-related taxes **Notes:** Ideally, two versions of this indicator should be compiled, one using real GDP measured in national currency units and the other measured in $US (converted at purchasing power parity) Ideally, revenue should be broken down by type of tax (taxes on carbon content versus other types of energy taxes)	**Energy-related taxes:** Data may be available from the public accounts of the national government or from the accounts of the energy ministry International organizations like the International Institute for Sustainable Development might also be sources

Thank you

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