

Data collection information for Background Paper					
Theme	Sub-Theme	Information required	Data type	Quantitative metric	Source
Country Overview	Geographic factors	♦ Location/Topography	Qualitative/Quantitative	♦ Land area (square kilometre)	♦ National Statistics Office, Multilateral Organisations
		♦ Climate	Qualitative/Quantitative	♦ Degree days, CO2 emissions (metric tonnes per capita)	♦ National Statistics Office, Multilateral Organisations
	Social indicators	♦ Population	Quantitative	♦ Total population, % rural and urban/total population, density	♦ Multilateral Organisations
		♦ Life expectancy at birth (male and female)	Quantitative	♦ In years	♦ Multilateral Organisations
		♦ Education-literacy rate	Quantitative	♦ Adult total (% of people ages 15 and above)	♦ Multilateral Organisations
		♦ Migration	Quantitative	♦ Rate of migration (temporary/permanent)	♦ Multilateral Organisations
	Governance structure	♦ Political arrangement ♦ Ruling entities	Qualitative Qualitative	— —	♦ Government ♦ Government
	Economic indicators	♦ Economic output	Quantitative	♦ GDP per capita (USD)/GDP growth (annual %), inflation consumer prices (annual %)	♦ Multilateral Organisations
		♦ Main sources of economy	Quantitative	♦ % of GDP/sector (primary, secondary, tertiary, remittances etc.)	♦ Multilateral Organisations
		♦ Net official development assistance and official aid received	Quantitative	♦ Current USD	♦ Multilateral Organisations
		♦ Trade and development	Quantitative	♦ Foreign direct investment, net inflows (balance of payment, current USD), Ease of Doing Business index (rank)	♦ Multilateral Organisations
		♦ Employment	Quantitative	♦ Unemployment rate (male/female %)	♦ Multilateral Organisations
		♦ Poverty	Quantitative	♦ Income inequality (Gini coefficient), % living less than USD1/day, HDI	♦ Multilateral Organisations
		♦ National budget (energy specific budget)	Quantitative	♦ Share of budget for energy/renewable energy	♦ Multilateral Organisations
♦ Country energy bill		Quantitative	♦ GDP %, cost of energy import (USD)	♦ Multilateral Organisations	
Theme	Sub-Theme	Information required	Data type	Quantitative metric	Source
Energy Resources, Technologies, Markets and Infrastructure	Energy resource availability and access	♦ Types of domestic energy resources (oil, coal, gas, hydro, wind, solar, biomass, etc.)	Quantitative	♦ Volume/ Toe ⁸ / kgs, Wh/m ² ⁹ ,m/s	♦ IEA, IRENA, National Ministries, Regulators, Statistical Bureau
		♦ Total primary energy supply/ population	Quantitative	♦ Toe/capita	♦ IEA
		♦ Forecasted demand and supply trends	Quantitative	♦ Units (tonnes, GW, GWh, barrels, etc.), main suppliers	♦ Ministry, Regulator, Private Sector, Regional Entity
		♦ External/imported energy resources	Quantitative	♦ Units (tonnes, GWh, etc.), main suppliers, net exporter/importer	♦ Ministry, Regulator, IEA, IRENA
		♦ Access levels for primary and secondary energy (rural/urban)	Quantitative	♦ Ratio (percentage)	♦ Multilateral Organisations, IEA World Energy Outlook
	Renewable energy resource potential	♦ Theoretical and technical ♦ Identified economic potentials	Quantitative Qualitative/Quantitative	♦ Units (tonnes, MW, GWh, etc.), main suppliers ♦ Units (MW, etc.), supported by satellite data and ground measurement wherever data available	♦ World Energy Resources, IRENA ♦ Government, Research Institutions, IRENA
Renewable energy technology options	♦ Local cost of RET (solar, hydro, wind, biomass-combustion, waste, biofuels, geothermal, marine), standards and certification	Qualitative/Quantitative	♦ Cost of electricity generation per resource identified	♦ IRENA, Other Studies	
	♦ Projects cost	Qualitative/Quantitative	♦ Costs (USD per unit of capacity or generation)/year commissioned	♦ Regulatory Agency, Rural Electrification Agency, Project Developers	
	♦ Type and range of suppliers ♦ Renewable energy generation {electricity (grid, decentralised-stand-alone/mini-grid), motive, thermal, transport}	Qualitative/Quantitative Quantitative	♦ Numbers ♦ Units (GWh, kWh, litres, tonnes, etc.)	♦ Consultant (country research) ♦ IEA, IRENA, Ministry	
8 Where Toe is Tonne of oil equivalent 9 Where Wh/m ² is Watt hour per square meter					
Theme	Sub-Theme	Information required	Data type	Quantitative metric	Source
Energy Resources, Technologies, Markets and Infrastructure Contd.	Infrastructure	♦ Roads and communication	Qualitative/Quantitative	♦ Units (kilometres (km), number of telecom masts), maps	♦ Ministries
		♦ Utilities ♦ State of the grid infrastructure,amount of dispatchable/balancing power, interconnections	Qualitative/Quantitative Qualitative/Quantitative	♦ Number, types, reach ♦ Length/coverage (km),capacity (MW/GWh)	♦ Utility ♦ Utility, Regional Power Pools
	Markets	♦ Prices for available primary and secondary energy	Quantitative	♦ USD/unit	♦ Consultant (country research)
		♦ Energy subsidy ♦ Adoption rate of the available RETs	Qualitative/Quantitative Quantitative	♦ (Reference price - end-user price) × units consumed ♦ Percentage	♦ Ministries (Finance, Energy), World Energy Outlook ♦ Consultant (country research)
		♦ Sales of various products and services for technologies ♦ Electricity market model and structure (bundled/unbundled) ♦ Barriers and risks	Quantitative Qualitative Qualitative	♦ Numbers/units — ♦ Categorisation	♦ Consultant (country research) ♦ Consultant (country research)
National Energy Policy and Strategy	Energy policy and strategy	♦ Regional/national/subnational energy policy (vision, objectives, etc.)	Qualitative/Quantitative	♦ Targets, years since policy/ies developed, budget allocation (subsidies for fossil fuels, etc.)	♦ Government, IRENA Policy Database
		♦ Rural electrification plans/ Strategy	Qualitative/Quantitative	♦ Objectives and targets	♦ Government, IRENA Policy Database
	Renewable energy policy or specific mandate	♦ Renewable energy in overall energy policy, renewable energy roadmaps and action plan	Qualitative/Quantitative	♦ Objectives and targets, budgets	♦ Government
		♦ Portfolio of renewable energy fiscal incentives	Qualitative	♦ Grant, energy production payment, rebate, tax credit, tax reduction/ exemption	♦ Government
		♦ Environmental policy	Qualitative		♦ Government
	Sector specific policies targeting key RETs Power sector reforms	♦ Agriculture, water, health, etc. - nexus between energy policies and other sector policies/ implementation	Qualitative/Quantitative	♦ Sector type, targets, years of implementation, etc.	♦ Government
♦ Status (bundled/unbundled), reforms and progress over timespan (if any)		Qualitative	—	♦ Government, Other relevant organisations	
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Institutions and Regulation	Governance structure	♦ Ministries, renewable energy department/centres, regulatory bodies (energy/electricity regulation/standards), Rural Energy or Rural Electrification Agencies	Qualitative (Include an Organogram)	—	♦ Ministry/Departments
	International organisation active in country	♦ Bilateral, multilateral, donors	Quantitative	♦ Types, numbers, renewable energy related projects and funds	♦ Consultant (country research)
	Non-government institutions active in the country	♦ Types (civil society, private sector, R&D institutions, financial institutions, private sector)	Quantitative	♦ Types (and reach,numbers, renewable energy related projects and funds	♦ Consultant (country research)
		♦ Roles and responsibilities of all these stakeholders	Qualitative	—	♦ Consultant (country research)
	Regulatory structure	♦ Institutions in charge of energy/ electricity regulation, standards, etc.	Qualitative-organogram, roles and responsibilities	—	♦ Ministry, Departments, Regulator
	Coordination (conflicts) between institutions	♦ Roles and responsibilities - short analysis	Qualitative	—	♦ Regulator, Consultant (country research)
Legal instrument/ regulation	♦ Renewable energy or electricity law	Qualitative/ Quantitative	♦ Yes/No,renewable energy portfolio standard/quota,tendering/bidding, Feed-in-tariff,net-metering	♦ Ministry/Departments, IRENA-IEA Policy Database	
	♦ Legal framework for utilities and IPPs	Qualitative	—	♦ Ministry	
	♦ Structure of PPAs ♦ Tariff structure	Qualitative/ Quantitative Qualitative/ Quantitative	♦ Yes/No, timescale, delivery, impact ♦ Types (public, off-grid, social, etc.), levels (in detail)	♦ Ministry, Utility, Regulator ♦ Utility, Regulator	
	♦ Grid code - (elements) ♦ Investment code - (elements)	Qualitative/ Quantitative Qualitative/ Quantitative	♦ Yes/No ♦ Yes/No	♦ Ministry ♦ Ministry	
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Capacity Needs	Education and training institutions for renewable energy	♦ Technical, management, maintenance, policy	Qualitative/Quantitative	♦ Number of institutions, types of support, budgets, projects	♦ Consultant (country research), IRENA Renewable Energy Learning Partnership (IRELP)
	Renewable energy research and development	♦ Public and private	Qualitative/Quantitative	♦ Same as above	♦ Same as above
	Other providers of capacity building	♦ Civil society, donors, corporates, etc.	Qualitative/Quantitative	♦ Same as above	♦ Same as above
	Knowledge and skills along the supply chain	♦ Resource assessments, finance, management, operation and maintenance, procurement, policy and regulation, etc.	Qualitative	—	♦ Consultant (country research), IRENA Renewable Energy Learning Partnership (IRELP)
	Cross sectional knowledge (e.g. technical vs. finance)	♦ Analysis of existing and potential	Qualitative	—	♦ Same as above
Theme	Sub-Theme	Information required	Data type	Quantitative metric	Source
Business Model	Renewable energy business model	♦ On-grid business models	Qualitative/ Quantitative	♦ Types{public, private, Public Private Partnership (PPP), co-operatives, etc.}, numbers	♦ Consultant (country research)
		♦ Off-grid (standalone, mini-grids)	Qualitative/ Quantitative	♦ Types (public, private, PPP, co-operatives, etc.), numbers	♦ Same as above
		♦ Costings	Qualitative/ Quantitative	♦ LCOE	♦ Same as above
		♦ Effect of direct and indirect financial incentives	Qualitative	—	♦ Same as above
		♦ Successful business models (best practice)	Qualitative	—	♦ Same as above
	Financing renewable energy projects	♦ Availability and types of financing	Qualitative/ Quantitative	♦ Types (formal, informal public etc.), number of financing institutions,available mechanisms (investment, grants, loans, CDM, risk guarantees, etc.), lending interest rate (%)	♦ Same as above
♦ Gaps, risks and opportunities for domestic and international funding		Qualitative	—	♦ Same as above	