

Drivers

nsights



- GDP (Real) has contracted marginally at an annual rate of 0.1% in 2019.
- Tonga's growth potential is limited due to its exposure to natural disasters, loss of workers to emigration and seasonal worker programs.<sup>2</sup>
- Tonga is a small and open island economy with heavy dependence on foreign aid and remittances. Its debtto-GDP ratio is estimated at around 40%.<sup>3</sup>



- Government of Tonga (GoT) has set a goal to generate 50% of electricity from RE sources by the end of 2020 and 70% by 2030.<sup>4</sup>
- Under the Tonga Energy Road Map (TERM) five major solar plants have been constructed.<sup>4</sup>
- The GoT is currently preparing a 'National Energy Framework Bill' to set out institutional, regulatory and policy reforms and lead to streamlined policy and decision making.<sup>4</sup>



- Owing to relatively moderate levels of average solar irradiation levels (GHI) of 4.80 kWh/m²/day and specific yield of 4.09 kWh/kWp, moderate technical feasibility is envisaged for solar projects in Tonga.<sup>5</sup>
- Tonga is highly dependent on imported fuels to meet its overall electricity requirements.<sup>6</sup>



- 99% population in Tonga has access to electricity as of 2018. Country's per capita electricity consumption in 2019 was 506 kWh which is significantly lower in comparison to the global average.<sup>7</sup>
- The state-owned Tonga Power Ltd (TPL) generates, transmits and distributes electricity to four Tonga islands.8
- TPL operates under a regulatory framework "Electricity Concession Contract (ECC)". 12
- Solar home systems provide power for nearly all the households in the smaller outer islands.<sup>13</sup>



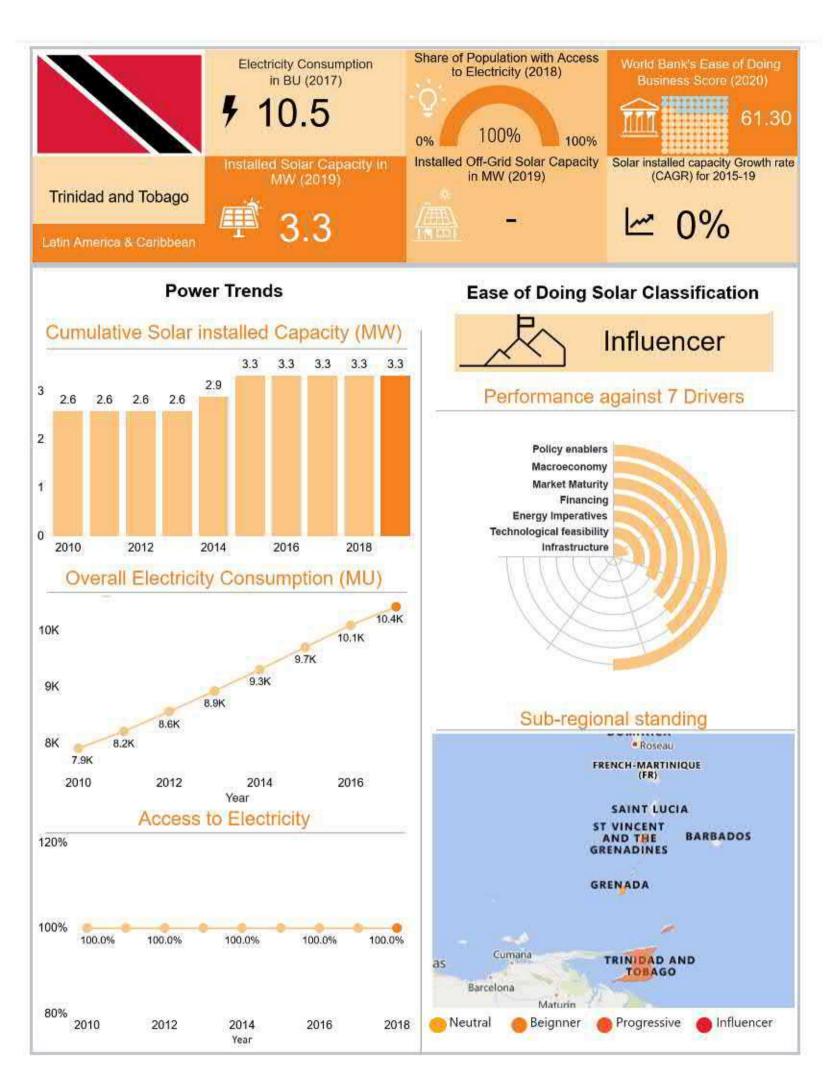
- The Solar PV installed capacity grew from 1 MW in 2010 to 6 MW in 2019.
- Asian Development Bank (ADB) is developing solar PV plants with a cumulative capacity of 1.25 MW in Tonga's remote islands.
- The overall system losses, for all four-grid island system, have decreased significantly from 16.01% in 2011 to 10.12% at end of 2019 reflecting improvements to the network.<sup>8</sup>

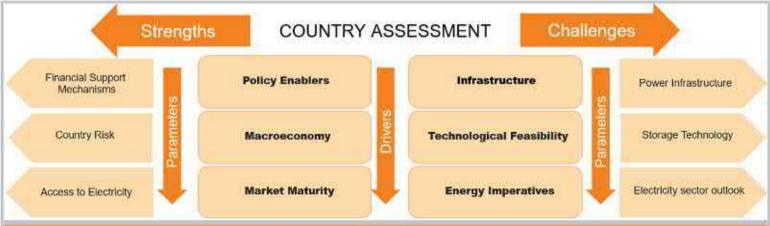


- FDI inflows decreased slightly from USD 15 million in 2018 to USD 13 million in 2019.<sup>3</sup>
- The Government of Tonga's efforts to achieve 50% renewable energy generation by 2020 is strengthened by the USD 29.9 million support from the Green Climate Fund (GCF).<sup>8</sup>



- The country observed an increase in demand for electricity by 8.4% from 57.9 MUs in 2018 to 62.8 MUs at end 2019.8
- Total renewable energy generation, in FY19, increased by 12.2% to 6.4 MUs from 4.14 MUs in the previous year.<sup>8</sup>
- Tonga Renewable Energy Project comprises country's first utility-scale battery energy storage systems
  which will allow more RE to be integrated into the grid while maintaining power quality and system
  reliability.<sup>11</sup>







- Trinidad and Tobago is a high income country with GDP per capita (at current prices) of USD 17,276. 19,10
- Oil and gas are the major contributor to the economy as it accounts for 40% of GDP and 80% of the total exports.<sup>8</sup>
- Diversifying the economy remains a key challenge for the country.<sup>2</sup>



- As per Finance Act, 13 of 2010, 0-Rated VAT, import duty exemptions, accelerated depreciation is provided for certain solar and wind equipments.<sup>19</sup>
- The Government, in budget 2015, has set a target to generate 10% of electricity from RE by 2021.6
- The Ministry of Energy and Energy Affairs (MEEA) is in the process of reviewing the legislative and regulatory environment and the National Electrical Code to create an enabling environment for Renewable Energy.<sup>5</sup>



- Owing to relatively high levels of average solar irradiation level (GHI) of 5.38 kWh/m<sup>2</sup>/day and specific yield 4.33 kWh/kWp, strong technical feasibility is envisaged for solar projects in Trinidad and Tobago.<sup>22</sup>
- Solar PV for water pumping, lighting, water heating are proven technologies in country.



- The country has achieved 100% access to electricity in 2006 itself.<sup>13</sup>
- Despite having a large potential, solar contributed to only 0.2% in the generation mix as of 2018.
- Country's power sector is regulated by Regulated Industries Commission. The transmission and distribution are unbundled and managed by state-owned Trinidad and Tobago Electricity Commission, whereas the generation is managed by three Independent Power Producers.<sup>4</sup>
- Trinidad and Tobago's economy is dominated by energy-intensive industries that consume more than half of the country's electricity.



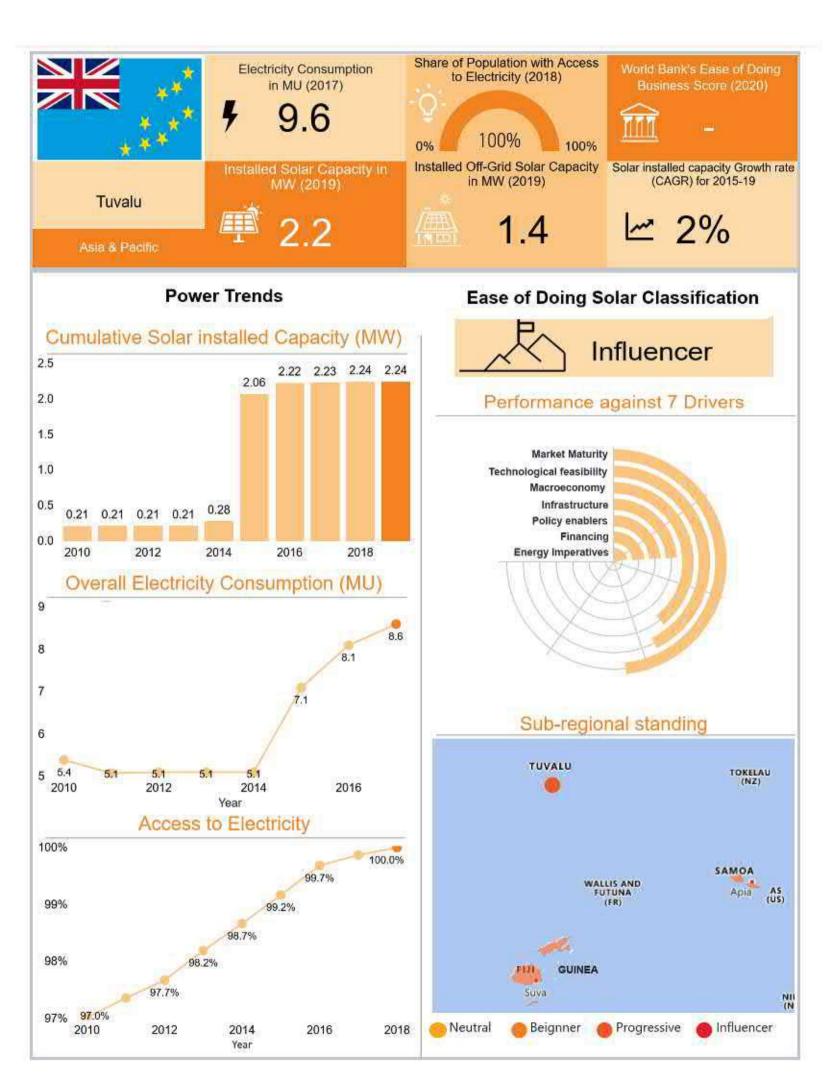
- The interconnections of the grids, in the two islands of the country, is a key challenge for the grid infrastructure.<sup>4</sup>
- Electricity system losses, at 11%, indicate a considerably efficient electricity network.
- Obsolete infrastructure and low power factor quality, due to inefficient consumer loads, have caused voltage fluctuations and increased the vulnerability to blackouts.<sup>23</sup>

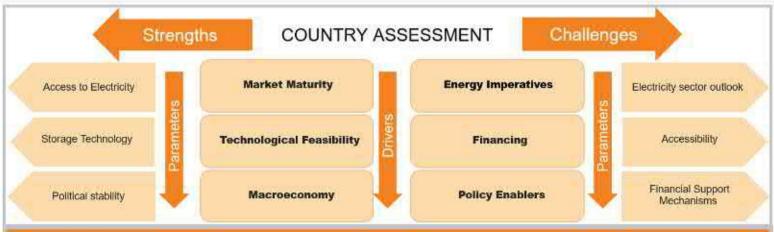


- Foreign Direct Investment, of USD 400-500 million, is expected in the coming years for the development and construction of 200 MW of wind and solar power capacity.
- The country has a credit rating of Ba1 with a negative outlook in 2020.
- Most of the domestic banks are compliant with the international IFRS9 and Basel II (banking) standards.
- The commercial banks and the insurance sector are well-capitalized, profitable, and have robust asset quality. Ratio of non-performing loans-to-gross loans have fallen from 3.1% in 2016 to 2.9% in 2017.<sup>18</sup>



- Per capita electricity consumption at 6,300 kWh is considerably high in comparison to the global average.<sup>15</sup>
- With the growth in population and economy, the power consumption is expected to grow at a CAGR of ~3% between 2019-23 i.e. from 10,964 MUs in 2019 to 12,323 MUs in 2023.<sup>12</sup>
- Owing to abundant Natural gas resources in the country, gas-based thermal power production contributed 99.1% of the total installed capacity of 2,135 MW in 2018.<sup>12</sup>
- Country targets to achieve 10% of power generation, from RE, by 2021.
- Trinidad and Tobago's electricity rates are the lowest in the Caribbean at approximately USD 0.04 per kWh and well below the regional average of USD 0.33 per kWh.<sup>4</sup>







- Tuvalu is a smaller economy remotely placed from major markets in the Pacific with a narrow production base and growth mainly driven by public expenditure.
- It is classified as an upper middle-income country as per World Bank's classification.<sup>1</sup>
- GDP (Real) has grown at an annual rate of 6.0% in 2019.<sup>2</sup>
- Approximately 7-10% of GDP is spent on imported fuel (around USD 2 million depending on oil prices) making energy the costliest as well as the most significant sector of the Tuvalu economy.<sup>3</sup>



- "Funafuti Road Map to 100% Renewable Energy" as part of the "Tuvalu Renewable Energy Project" provides a pathway for current and future stages of renewable energy development in the capital Funafuti (towards a 100% renewable energy contribution).
- The Master Plan for Renewable Electricity and Energy Efficiency aims 100% renewable energy by the end of 2020 (extended to 2025) out of which approximately 95% power demand to be fulfilled by Solar PV.4



- Owing to high levels of average solar irradiation of 5.34 kWh/m²/day and specific yield of 4.26 kWh/kWp, a strong technical feasibility is envisaged for solar projects in Tuvalu.<sup>5</sup>
- Tuvalu, like many Pacific Nations, has traditionally relied on imported fossil fuels for electricity generation.<sup>3</sup>



- 100% population had access to electricity as of 2018.6
- In 2018, Tuvalu had approximately 16% of the total electricity generation coming from renewable energy sources.<sup>3</sup>
- The publicly owned Tuvalu Electricity Corporation owns and operate the generation and distribution assets<sup>3</sup>
- Current generation costs in Funafuti are high due to reliance on diesel for the bulk of its generation.<sup>3</sup>



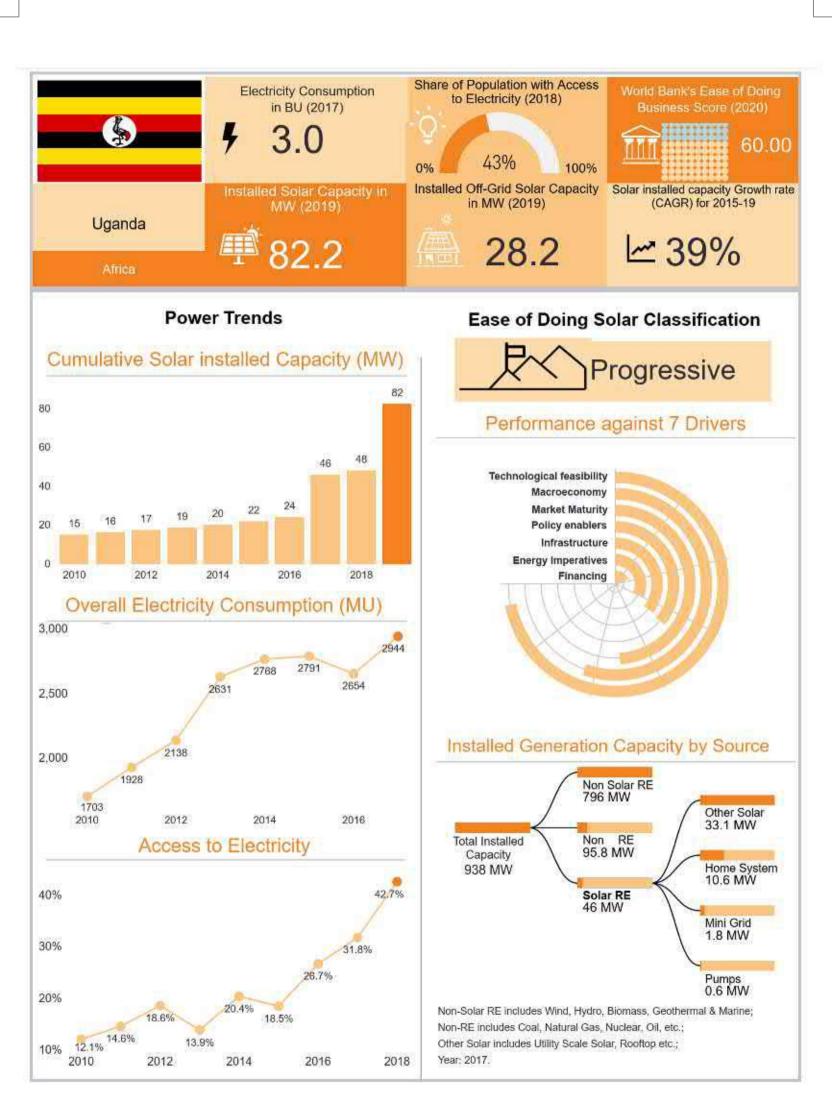
- With a total land area of just 26 sq. km, Tuvalu faces the challenge of land availability for utility scale Solar PV 7
- The Tuvalu Photovoltaic Electricity Network Integration Project is located in the rural islands of Vaitupu
  which is a solar PV mini grid with battery storage with a capacity of 46 kWp.<sup>7</sup>
- The Tuvalu Solar Space Creation Project was financed by the United Arab Emirates' Pacific Partnership Fund through the Abu Dhabi Fund for Development (ADFD) and developed by Masdar (Abu Dhabi's renewable energy company). The 500 kW rooftop solar project, with the help of advanced control technology to ensure grid stability, generates 755,000 kWh per year.

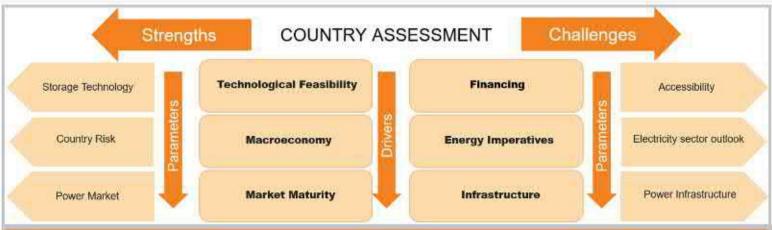


- Tuvalu relies heavily on official development assistance with budgeted flows in 2018 totalling AUD 24.4 million equivalent to 37.2% of gross domestic product.
- In addition to the Asian Development Bank (ADB)and the World Bank, Tuvalu's main development partners are Australia, Japan, New Zealand, the European Union, Taipei and China.<sup>3</sup>
- As per Tuvalu Master Plan for Renewable Electricity a total renewable electricity generation capacity of 6 MW is estimated requiring a capital investment of AUD 52 million.<sup>4</sup>
- In 2017 Tuvalu was the first recipient of the Green Climate Fund (GCF) contributions for climate change adaptation in the Pacific region for the Tuvalu Coastal Adaptation Project.<sup>3</sup>



- Electricity demand grew at around 6% annually during 2013–2017.3
- Total Installed capacity in the country is 3 MW which includes Solar PV capacity of ~2 MW as of 2019.8
- As of 2016, oil contributed to 95% of the total primary energy consumption of the country.8







- GDP (Real) has grown at an annual rate of 4.9% in 2019.1
- The GDP (current) is poised at USD 34.38 billion as of 2019.21
- Retail, construction, and telecom industry are the major contributors to the economy.<sup>25</sup>
- Most of the country's investements are in large infrastructure projects. As a result, agriculture, tourism, and industrial sector have shown little growth in the previous years.<sup>24</sup>



- Government of Uganda has shown a strong commitment towards deployment of RE with a roadmap to achieve 3,200 MW by 2030 and reach 100% RE by 2050.<sup>2,3</sup>
- Renewable Energy feed-in-tariff policies have been introduced in 2011. For solar PV projects, 10% return on equity has been considered with a tariff ceiling of USD 0.07 per kWh in 2018.<sup>4</sup>
- Import duty and VAT have been exempted for solar home systems above 11Wp.6



 Owing to relatively high levels of average solar irradiation level (GHI) of 5.64 kWh/m²/day and specific yield 4.45 kWh/kWp, strong technical feasibility is envisaged for solar projects in Uganda.



- · Power sector is regulated by Electricity Regulatory Authority (ERA) in Uganda.
- The Government of Uganda (GoU), ERA and the German Development Bank KfW have launched the 'Global Energy Transfer Feed-in-Tariff' (GET FiT) auction program in 2013, to promote RE generation.<sup>9</sup>
- The Rural Electrification Strategy and Plan 2013- 2022 has a primary objective to achieve 100% electrification by 2040.<sup>7,8</sup>
- As of 2018, 43% of the population has access to electricity in Uganda.
- Despite having significant potential solar constitute only 1.3% of the total generation of 4,252 MUs.<sup>13</sup>



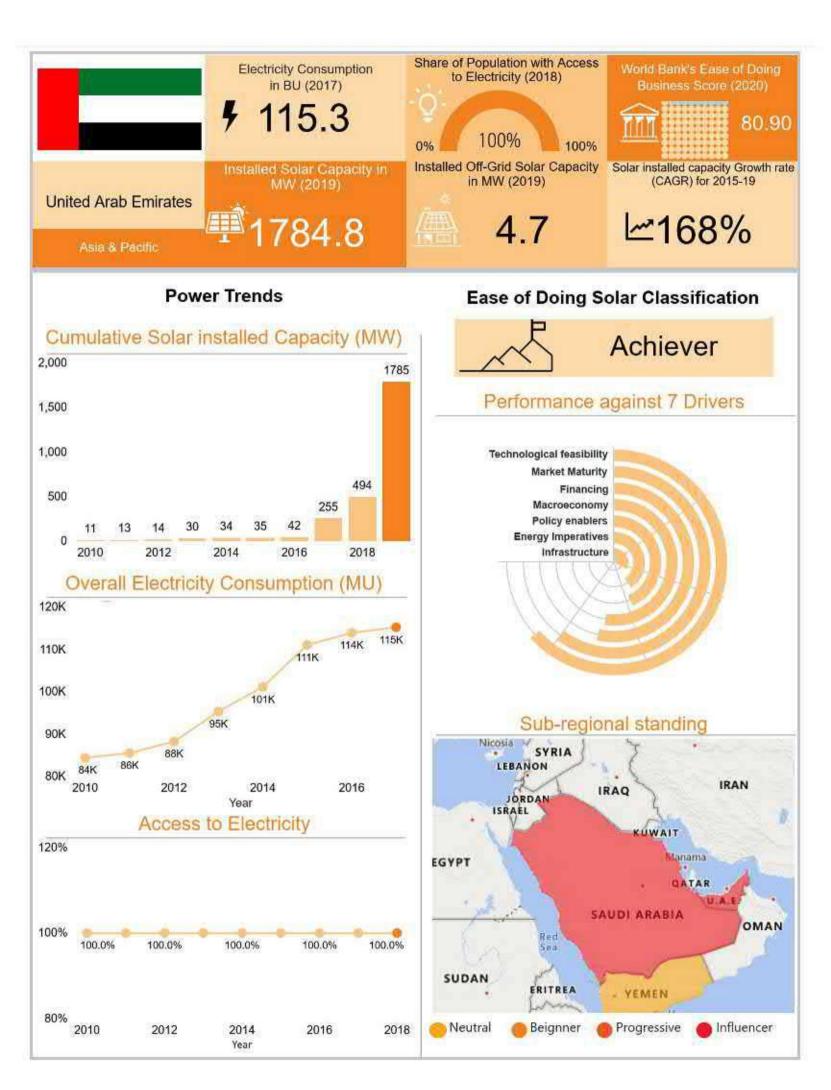
- Transmission system losses stand at 3.8% of output indicating a considerably efficient network.
- The government is planning to increase the total length of the transmission network to 3,400 km in the coming years to improve access to electricity.<sup>5</sup>
- With 34% of total land earmarked for agricultural purpose, identification of suitable land for developing utility-scale solar projects may be a key challenge.<sup>16</sup>
- In 2020, Amea Power signed an agreement to install a total capacity of 130 MW wind and 90 MWp solar power plants.

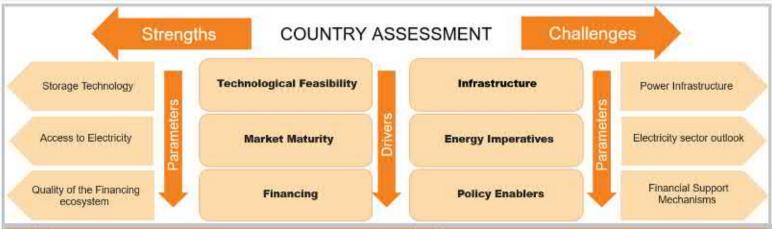


- Uganda has a credit rating of B2 with a stable outlook in 2020.<sup>22</sup>
- The domestic banking system is well-capitalized, profitable and stable. The Non-performing loans to total gross loans ratio fell to 3.4% in 2018 from 5.6% in 2017.<sup>24</sup>
- Due to limited financing options for small firms and local businesses, the private sector credit remains low at 12% of GDP.<sup>24</sup>
- Around 85% of the population has access to financial services in 2018. The government is in the process of implementing a five-year strategy to further improve financial services.<sup>24</sup>



- Per capita consumption of approximately 900 kWh is relatively low in comparison to the global average of 3,400 kWh in 2019.<sup>14</sup>
- Owing to large water reserves, large and small hydropower plants constitute 88% in the generation mix in 2018.<sup>13</sup>
- Uganda's installed electricity generation capacity is growing at 6% annually. However, lack of an integrated power system may hinder this growth rate.<sup>17,18</sup>
- Since over 75% of the population resides in the rural areas of which 43% of the population has access to electricity, off-grid solar systems can be a viable solution.<sup>11</sup>
- In 2018, the tariff for existing solar plants is observed to be USD 0.11 per kWh.<sup>15</sup>







- GDP (Real) has grown at an annual rate of 1.3% in 2019.11
- A high income and developed country with a GDP (current prices) per capita of USD 43,103 in 2019.<sup>12,13</sup>
- UAE "Vision 2021" aims to create a sustainable, diversified, competitive knowledge economy with worldclass Healthcare, Education and a fair Judiciary and Public safety. 19,14
- Extractive industries, Wholesale and Retail Trade, Financial and Insurance activities, Construction and building are the major sector contributing to the GDP.<sup>19</sup>



- Dubai has introduced competitive bidding for renewable energy tenders in 2013 as a part of its "Clean Energy Strategy 2050" to attract private investors in RE and increase RE generation.
- "Clean Energy Strategy 2050" aims to increase the share of clean energy to 50% in the energy mix and scale down the carbon footprint of power generation by 70% by 2050.9
- Dubai and Abu Dhabi had introduced net metering scheme in 2015 and 2017 respectively to promote RE generation while other Emirates are planning to adopt the scheme.
- Dubai has introduced Renewable Energy Standards, in 2013, to set up a common framework for grid connection agreements.<sup>18</sup>



- Owing to relatively high levels of average solar irradiation level (GHI) of 6.05 kWh/m²/day and specific yield 5.02 kWh/kWp, a strong technical feasibility is envisaged for solar projects in UAE.<sup>10</sup>
- Despite having a significant potential, solar contributed a mere 1% in the total generation of 135,996 MUs in 2018.<sup>5</sup>



- 100% of the population has access to electricity in UAE since 1990.
- UAE has recently installed its first pilot floating solar PV, with a capacity of 80 kW, off the coast of Nurai island in 2020. In 2019, Dubai has also issued RFP to construct floating solar PV in the Arabian Gulf.<sup>20,21</sup>



- To meet the growing energy demand, UAE aims to invest AED 600 billion by 2050.8
- In 2012, Dubai had announced Mohammed bin Rashid Al Maktoum Solar Park which is now expected to reach a capacity of 1 GW by the end of 2020 and 5 GW by 2025.8
- Since 2009, UAE's national grid is connected to Saudi Arabia, Kuwait, Bahrain, Oman, and Qatar through the GCC Interconnection Grid. According to GCCIA estimates, this grid interconnection has made economic savings of USD 2.2 billion between 2011 and 2016.<sup>17,22</sup>
- With new upcoming projects in UAE, the total length of Transmission and Distribution lines is expected to reach 23,982 ckm and 125,546 ckm by 2025.<sup>17</sup>

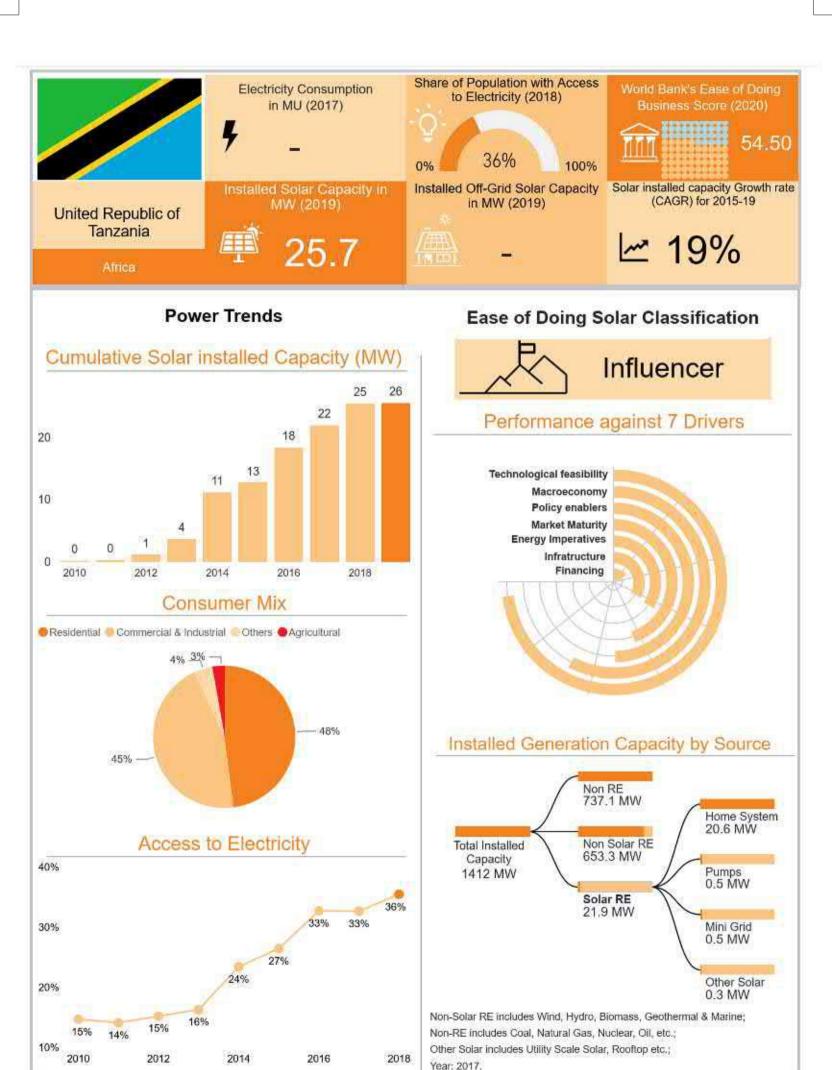


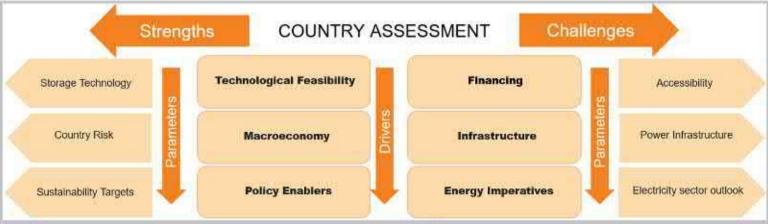
- Country's credit rating of A3 with a stable outlook in 2020 is a positive indicator for the investors.<sup>2</sup>
- As per UNCTAD's World Investment Report 2020, FDI inflows have increased from USD 10,385 Mn. in 2018 to USD 13,787 Mn. in 2019.
- The domestic banks are profitable and increased oil revenues have increased liquidity and private credit.<sup>3</sup>
- UAE has an Ease of Doing score of 80.9 (out of 100) and ranks 16th among 190 countries. It ranks 1st in getting access to electricity, 3rd in dealing with construction permits and 9th in enforcing of contracts thus enabling a strong business environment.<sup>15</sup>
- Most domestic banks are compliant with the international IFRS9 standards.



Imperatives

- Per capita consumption of 13,800 kWh is significantly high in comparison to the global average of approximately 3,400 kWh in 2019.<sup>4</sup>
- Owing to abundant Natural gas resources in the country, gas-based thermal power production contributes
   98.3% of the generation mix in 2018.<sup>5</sup>
- With economic and population growth, the annual electricity consumption is expected to reach 225 Bus, by 2030, growing at a CAGR of 3.9%.<sup>17</sup>
- As of 2017, the commercial and residential sector constitutes 71% of the total electricity demand in UAE.





Drivers



- GDP (Real) has grown at an annual rate of 6.3% in 2019.8
- Tanzania is a low-income developing country as per World Bank's classification with a GDP (real) per capita of USD 1,122 in 2019.<sup>5,7</sup>
- Its economy is characterized by strong investment growth, substantial public spending and robust private consumption.<sup>18</sup>



- Under the VAT Act 2014 and EAC customs Management Act 2004, import duty and VAT have been exempted for solar and wind equipment to attract investments in renewables.<sup>13,14</sup>
- The National Five-Year Development Plan 2016-17 2020-21 (FYDP II) aims to increase the share of renewables in electricity generation. to 70%, by 2025-26.<sup>15</sup>
- Introduced in 2008, Feed-in-tariff is catalysing the growth of rooftop solar PV in the country.
- The government allowed competitive bidding rules under The Electricity (Development of Small Power Projects) Rules, 2017 for solar and wind projects for capacities between 1 MW and 10 MW.<sup>10</sup>
- The Power System Master Plan 2012 targets to achieve an electrification rate of 75% by 2033.



Owing to relatively high levels of average solar irradiation (GHI) of 5.66 kWh/m<sup>2</sup>/day and specific yield 4.51 kWh/kWp, strong technical feasibility is envisaged for solar projects in Tanzania.<sup>11</sup>



- As of 2018, 36% of the population has access to electricity in Tanzania.
- Despite having significant potential, solar contributed a mere 1.2% in the total generation of 7.2 BUs in 2018.<sup>9</sup>
- As per the assessment done by USAID in 2018, approximately 55% of the population has access to mobile money platforms indicating high potential for solar home systems.<sup>18</sup>
- Many off-grid solar products are paired with PAYGO offerings for easy financing options.
- Tanzania is a member of the Eastern African Power Pool which aims to optimize the available energy resources and reduce electricity cost in the region.<sup>19</sup>



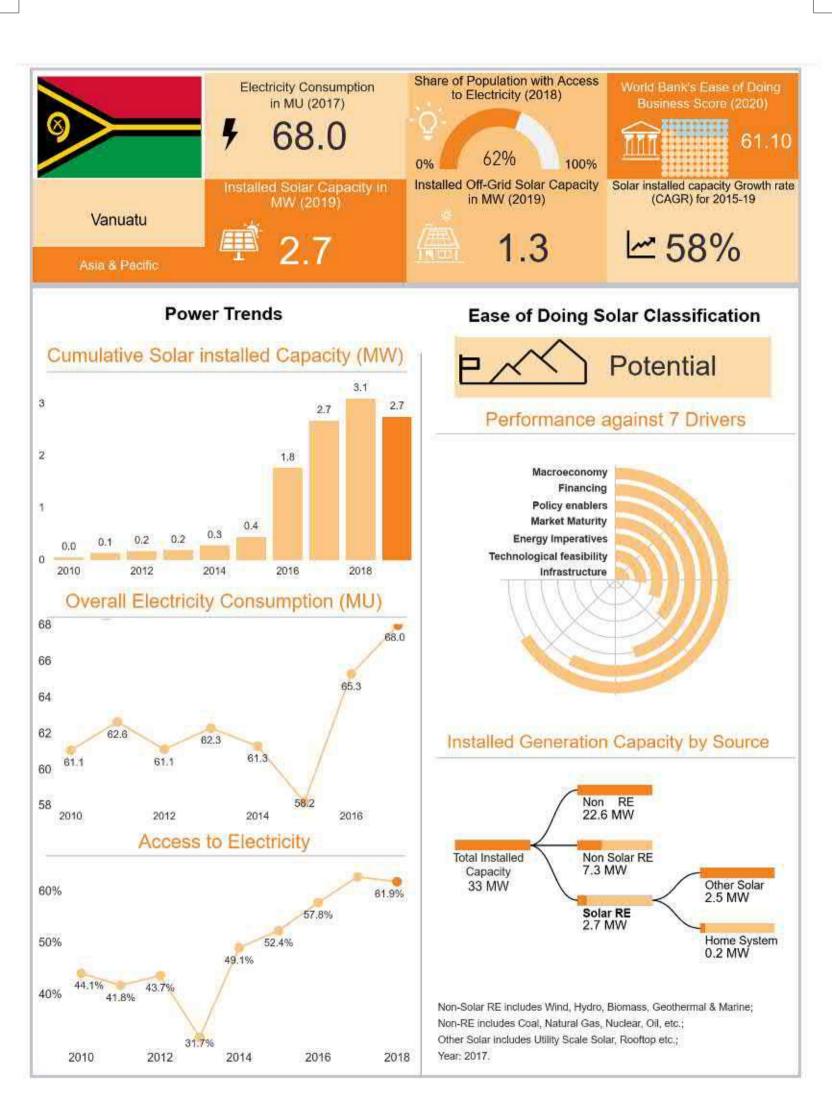
- The National Grid of Tanzania is interconnected to Uganda, Kenya and Zambia. Tanzania imports up to 16 MW of electricity from these countries.
- The total length of Transmission and Distribution lines is expected to reach 1,29,584 ckm, by 2025.
- As of 2014, transmission and distribution losses in Tanzania are at 18%.<sup>21</sup>
- In 2018, Tanzania Electric Supply Company Ltd has issued a request for proposals for the construction of several large-scale PV projects with a combined capacity of 150 MW to increase the share of solar in the energy mix.

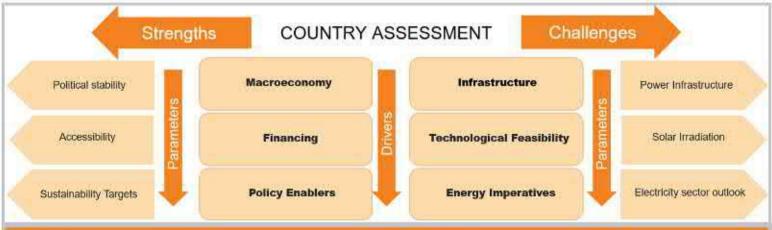


- Tanzania has a credit rating of B2 with a stable outlook in 2020.<sup>2</sup>
- FDI inflows have increased from USD 1,056 million in 2018 to USD 1,112 million in 2019.
- Tanzania has an Ease of Doing score of 54.5 (out of 100) and ranks 141st among 190 countries in 2020.
   Businesses face challenges in getting credit, construction permits, enforcing contracts, access to electricity, paying taxes and trading across borders.<sup>3</sup>



- Per capita consumption of 100 kWh is relatively low in comparison to the global average.
- Owing to considerable natural gas resources in the country, gas-based thermal power production contributed 48.49% of the generation mix in 2018.<sup>9</sup>
- Since over 65% of the population resides in the rural areas of which 81% of the population don't have access to electricity, off-grid solar systems can be a viable solution to improve access to electricity.
- With economic and population growth, the annual electricity consumption is expected to reach 12.1 BUs by 2022 from 8.4 BUs in 2018, growing at a CAGR of 9.8%.<sup>10</sup>
- As of 2017, the residential and industrial sector constitutes 70% of the total electricity demand.







- GDP (Real) has grown at an annual rate of 2.9% in 2019.4
- Vanuatu economy is affected by vulnerability to natural disasters and limited commodity exports. Economy
  is dependent on foreign aid and concessional loans from international development agencies.<sup>5</sup>
- Agriculture, fishing, tourism and offshore financial services are the major contributors to the economy.<sup>3</sup>
- Vanuatu's 80 islands are mostly volcanic and spread over 710,000 square kms in the western Pacific Ocean. Of these 80 islands, only 65 have permanent population.



- The National Energy Roadmap (NERM) 2013-2020 aims to achieve 65% of share of renewable energy in the generation mix by 2020.<sup>7,9</sup>
- Vanuatu has enacted the Net Metering Act in 2014 which is catalysing the growth of solar PV in the country.
- There is no income or corporate tax in Vanuatu since 1994. It also supports RE companies by offering
  import duty exemptions on RE equipment on a case by case basis thus attracting private investments.<sup>1,17</sup>
- Vanuatu Rural Electrification Project (VREP) II 2017, funded by World Bank, aims to subsidize the cost of solar home systems, mini-grids and micro-grids in rural areas benefiting approximately 42,000 people.<sup>13</sup>



- Owing to relatively moderate levels of average solar irradiation (GHI) of 4.3 kWh/m²/day and specific yield 3.54 kWh/kWp, moderate technical feasibility is envisaged for solar projects in Vanuatu.<sup>12</sup>
- In 2019, The Global Green Growth Institute (GGGI), the Ministry of Climate Change and the Ministry of Lands and Natural Resources has signed a solar water pumping project to meet the water needs in the country.



- As of 2018, 62% of the population has access to electricity; in rural areas this number is 51%.<sup>15</sup>
- The National Energy Roadmap (NERM) 2013-2020 aims to achieve 100% access to electricity by 2030.9
- Lack of regulatory oversight, due to existing concessional contracts, may hinder the growth of renewable energy and can be seen as a roadblock for Independent Power Producers in the country.<sup>1</sup>
- Nationally Appropriate Mitigation Action (NAMA), implemented in 2015, is supporting NERM targets by installing RE micro grids and extending the existing grid in the country.



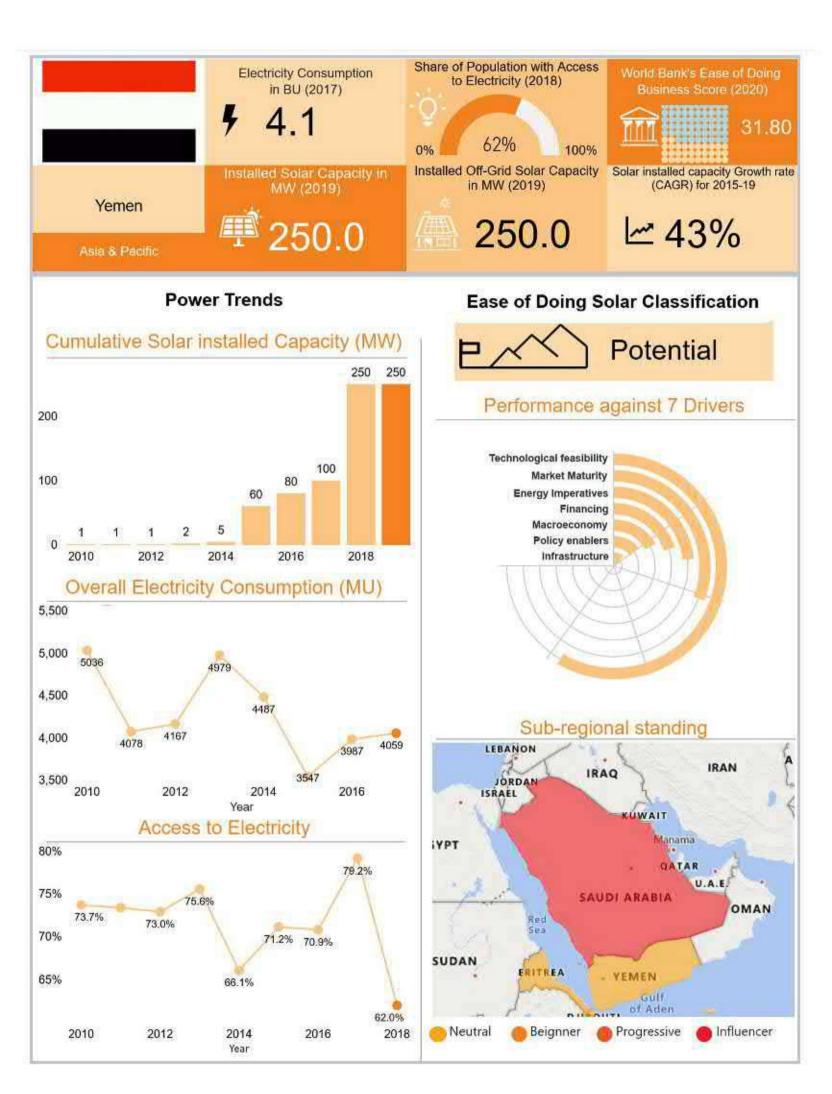
- Integration of the National grid in all parts of the country, due to large number of dispersed islands, is a major challenge.<sup>1</sup>
- The government had issued guidelines in 2014 which provide a clear set of principles and framework to encourage Independent power producers and investors.<sup>19</sup>

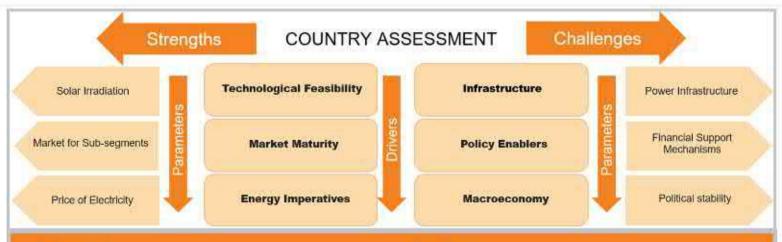


- The National Energy Roadmap (NERM) 2013-2020 aims to provide a framework to attract private sector investments.<sup>9</sup>
- According to UNCTAD's World Investment Report 2020, FDI inflows has increased from USD 38 Million in 2018 to USD 41 million in 2019.
- Unclear land ownership, regulatory restrictions, high upfront capital costs and constraints to equipment maintenance are key roadblocks for private sector investments in Vanuatu.<sup>2</sup>



- Per capita electricity demand of 189 kWh is significantly lower as compared to the global average.<sup>6</sup>
- Electricity generation, from renewable energy, accounts for 36% of the total energy mix in 2017.<sup>15</sup>
- Commercial and public sectors account for nearly 80% of the total grid connected electricity demand.
- The national electricity consumption is expected to increase from 91,513 MUs in 2020 to 166,719 MUs in 2030 at a CAGR of 6%.<sup>16</sup>
- Vanuatu depends heavily on imported diesel for electricity generation in rural areas where grid is not available. Thus has significant availability and price vulnerability to fluctuating oil prices.<sup>1</sup>





Drivers

Insights



- GDP (Real) has grown at an annual rate of 2.1% in 2019.7
- GDP per capita (at current prices) is approximately USD 9682 in 2018.
- Yemen continues to face an unprecedented humanitarian, social and economic crisis. Significant damage to vital public infrastructure has contributed to a disruption of basic services in Yemen.<sup>7</sup>



- The National Strategy for Renewable Energy and Energy Efficiency 2010 aims to achieve 15% share of renewable sources in energy mix by 2025.<sup>1</sup>
- World Bank funded USD 50 million towards its "Yemen Emergency Electricity Access Project" in 2018 with a
  goal to expand electricity access to schools, hospitals and in rural areas using solar.<sup>3</sup>
- "Enhanced Rural Resilience in Yemen (ERRY)" project, started by the United Nations Development Programme (UNDP) in 2016, aims to increase solar penetration in the country by installing solar microgrids.<sup>10</sup>



- Owing to relatively high levels of average solar irradiation level (GHI) of 6.47 kWh/m²/day and specific yield 5.24 kWh/kWp, a strong technical feasibility is envisaged for solar projects in Republic of Yemen.<sup>16</sup>
- Solar PV for water pumping, lighting and water heating are proven technologies in Yemen's renewable energy sector.<sup>5</sup>



- Due to the ongoing conflict in the country, population with access to electricity has decreased from approximately 71% in 2015 to 62% in 2018.<sup>17</sup>
- · Absence of quality standards and skilled manpower/technicians for solar are areas of concern. 6
- Solar constituted 12% of total electricity generation (of 3,609 MUs) in 2018.<sup>1</sup>



- Persistent load shedding and grid instability are major challenges in Yemen's power sector.
- Power infrastructure has deteriorated over time due to insufficient investments for maintenance.<sup>2</sup>
- The 2018, "Dynamic Damage and Needs assessment (DDN)" report shows 6 out of 10 assessed cities have no access to public electricity.<sup>3</sup>
- The Saudi Development and Reconstruction Program for Yemen (SDRPY) has launched a project, in 2020, for installation of new medium-voltage and low-voltage power networks including lines, extensions and transformers.



- Ongoing conflict has led to a decrease in FDI stock from USD 2,595 million in 2017 to USD 1,942 million in 2019.<sup>13</sup>
- Solar loans are making 5% to 20% of total lending among assessed micro finance institutions.<sup>3</sup>
- USD 1 billion has been invested in solar PV, in the residential sector since 2012 thereby creating a strong business opportunity for private sector companies.<sup>6</sup>



- Per capita electricity consumption of 140 kWh, in 2019, is significantly lower in comparison to the global average.<sup>11</sup>
- Residential sector represents 79% of the electricity demand in 2018.
- 55% percent of households relied on solar PV as the primary source of lighting in 2017.
- Oil is the primary source of electricity generation having 78% share in the energy mix in 2018.