

C&I was already a reality, but represented a very small MWp capacity within the African total.

But the market is clearly changing as C&I projects are now receiving a growing interest. Based on data collected by AFSIA, C&I could indeed represent 30-40% of all solar capacities installed in the coming years.

C&I catching the lion's share of the number of solar projects in Africa is not a surprise though. Three main reasons are driving this evolution.

First, more and more C&I end-users are now fully understanding the benefits of going solar. C&I end-users are by nature more acquainted with financial models, cost-benefit analysis, and long-

term projections than residential end-users or public servants. While it may have taken them some time to trust the quality of solar solutions, most of the C&I community is now educated about the benefits of solar energy and wants to jump on the bandwagon so they can enjoy cheaper and more reliable electricity to run their business.

But until now, the wide majority of these C&I projects has been delivered on a CAPEX basis, meaning that the end-user has had to pay the full amount upfront for the solar installation. This has definitely limited the number of projects that have been built so far as only a small percentage of companies possesses the required cash to make such an upfront investment,



literally to purchase 25 years worth of solar electricity in 1 go.

Luckily, the international investment community has understood the opportunity as well and has developed a growing appetite for investments in C&I projects in Africa. This is the second driver of the African C&I boom.

African C&I projects are indeed considered as attractive investment opportunities as they are based on B2B negotiations (as opposed to B2G), they can be conducted and successfully closed quickly (faster than the lengthy government tenders) and they can offer interesting IRRs (as opposed to international tenders for large-scale projects where the international competition pushes IRR expectations to their lowest limits).

For all these reasons, C&I opportunities are generally considered as good and attractive deals. But their scattered nature and significantly lower ticket size per project may play against them from an investor's point of view. This is where the 3rd main driver kicks in.

The challenge with financed C&I is to generate large enough portfolios of projects to attract investment partners. No matter how good the project is, it can be extremely difficult (if not impossible) to finance a single project because investors are looking for scale and being able to deploy large ticket sizes.

This is now growingly made possible thanks to the rise of a group of continental C&I development champions such as Daystar Power, Starsight, DPA, or Total to name a few. These companies all have already delivered 100s of C&I sites across the continent and have put in place processes that allow for faster and more efficient roll-out of C&I projects. The financing deals announcements of some of these companies in early 2021 are very logical and announce an exponential growth not only of these project developers, but of the entire C&I segment.

# SEGMENT REVIEW: C&I

## AFRICAN SERVICE STATIONS GOING SOLAR

2020 has witnessed a real boom of hundreds of petrol stations across Africa going solar. The most notable push came from Total, the French O&G giant, which to date has solarized 540 petrol stations across 27 African countries (albeit relatively silently and without attracting too much attention). But this is a considerable achievement as it makes Total the de facto African leader in C&I development when looking at the total number of projects delivered.

Next to Total, the Zimbabwean Zuva Petroleum has also opted to solarize its gas stations and has planned to install PV and storage at 180 of its service stations across the country.

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# SEGMENT REVIEW: C&I

Other more isolated examples have also popped all across the continent.

We have identified some solar gas stations in Morocco, in Namibia with the PUMA service station in Windhoek, the Oniru station in Nigeria, the OK Express station in Wellington, South Africa, or also in DRC with the Ihusi station getting a hybrid system developed and installed by 2 AFSIA members.

In total, AFSIA has thus far identified 734 service stations across 29 countries that are now running partially or fully on solar energy. The motivation behind this move in almost all cases is cost savings. The fact that the service stations are have access to stable grid or not does not make a big difference for the service station operator.

In case of unstable grid, they more than anyone else would have easy access to diesel to run generators.

But with or without stable grid, they opt for solar as it now offers lower power costs. Quite an interesting turn of event to say the least!



Credit: AZIMUT 360



# MALI

## OBJECTIVES

- increase installed renewables capacity to 1.42 GW by 2030, with more than 600 MW off-grid [link](#)
- increase share of RE in electricity mix to 25% by 2033 [link](#)

## TOTAL PV INSTALLED



source [AFSIA](#) [IRENA](#)

## CURRENT TARIFF GRID ELECTRICITY

|      | RESIDENTIAL | COMMERCIAL | INDUSTRIAL |
|------|-------------|------------|------------|
| MIN. | \$0.112     | \$0.245    | \$0.173    |
| MAX. | \$0.298     | \$0.327    | \$0.253    |

[source](#)

## POLICY / REGULATION

- all PV components are exempted from import duty and VAT [link](#)
- no net-metering, no FiT

## ELECTRIFICATION RATE

- 27% of the population has access to electricity [link](#)
- target to add a 61% rural electrification [link](#)

## NOTEWORTHY DEVELOPMENTS

- Scatec building 33 MWp Segou plant [link](#)
- 70+ MW for mining activity under construction or development
- Green Climate Fund financing 70 MG [link](#)



# MAURITANIA

## OBJECTIVES

- 20% RE by 2020 [link](#)
- 35% RE by 2030 [link](#)

## TOTAL PV INSTALLED

|                   |  |          |
|-------------------|--|----------|
| LARGE SCALE       |  | 19.3 MWp |
| C&I               |  | 0 MWp    |
| MG                |  | 16.6 MWp |
| SHS & RESIDENTIAL |  | 0 MWp    |

source [AFSIA](#) [IRENA](#)

## CURRENT TARIFF GRID ELECTRICITY

|      | RESIDENTIAL | COMMERCIAL | INDUSTRIAL |
|------|-------------|------------|------------|
| MIN. | \$0.083     | \$0.083    | \$0.072    |
| MAX. | \$0.159     | \$0.159    | \$0.104    |

[source](#)

## POLICY / REGULATION

- professionals said to import solar equipment with exemption for import duties and taxes, but no official document to be found [link](#)
- ADER provides subsidies of 60-80% for some of the isolated grids [link](#)

## ELECTRIFICATION RATE

- 29% of the population has access to electricity [link](#)
- target to increase access rate to 95% in urban areas and 40% in rural areas, reach national electrification rate of 70% by 2030 [link](#)

## NOTEWORTHY DEVELOPMENTS

- 1.4 MW / 4 MWh MG under development in Ndiago



# MAURITIUS

## OBJECTIVES

- government plans to increase use of RE for electricity generation from 22% to 40% by 2030 [link](#)

## TOTAL PV INSTALLED



source [AFSIA](#) [IRENA](#)

## CURRENT TARIFF GRID ELECTRICITY

|      | RESIDENTIAL | COMMERCIAL | INDUSTRIAL |
|------|-------------|------------|------------|
| MIN. | \$0.055     | \$0.074    | \$0.054    |
| MAX. | \$0.219     | \$0.250    | \$0.135    |

[source](#)

## POLICY / REGULATION

- several tax incentives for solar investment [link](#)
- Net-metering for residential customers for installations not exceeding 5 kWp [link](#)
- Prosumers registered under the CEB net-metering scheme get FiT (scheme closed in 2015 after target was reached) [link](#)
- Green energy scheme for SMEs: 2,000 2 kWp systems installed free of charge [link](#)

## ELECTRIFICATION RATE

- 99% of the population has access to electricity [link](#)

## NOTEWORTHY DEVELOPMENTS

- 17 MWp Henrietta project under construction [link](#)





# MOROCCO

## OBJECTIVES

- RE to represent 50% of energy mix by 2030 and 100% by 2050 [link](#)  
Addition of 4,560 MW of solar by 2030 [link](#)

## TOTAL PV / CSP INSTALLED

|                   |  |                              |
|-------------------|--|------------------------------|
| LARGE SCALE       |  | 322 MWp (PV) + 510 MWe (CSP) |
| C&I               |  | 4 MWp                        |
| MG                |  | 0 MWp                        |
| SHS & RESIDENTIAL |  | 15,86 MWp                    |

source [AFSIA](#) [IRENA](#)

## CURRENT TARIFF GRID ELECTRICITY

|      | RESIDENTIAL | COMMERCIAL | INDUSTRIAL |
|------|-------------|------------|------------|
| MIN. | \$0.099     | \$0.066    | \$0.067    |
| MAX. | \$0.176     | \$0.267    | \$0.322    |

[source](#)

## ELECTRIFICATION RATE

- 99% of the population has access to electricity [link](#)

## POLICY / REGULATION

- PV equipment subject to 30% import duties (maybe 40% in near future) [link](#)
- solar pumps for agriculture are exempt from import duties [link](#)
- law 54-14 allow for self-consumption: up to 2 MW only requires a declaration, above 2 MW requires permit
- laws 13-09 allow for corporate PPAs
- FiT technically allowed by price not determined yet

## NOTEWORTHY DEVELOPMENTS

- launch of 400 MW Noor PV II – Phase 1 tender [link](#)
- 600 MWp + 200 MWe Noor Midelt II tender in preparation [link](#)
- opening of 13-09 and 54-14 to MV customers expected to give a boost to PV projects



# MOZAMBIQUE

## OBJECTIVES

- increase installed capacity to 3,138 MW by 2022 and 4,163 MW by 2030 [link](#)
- for solar, Mocuba 40MW and Metoro 30 MW are Priority Generation Projects [link](#)

## TOTAL PV INSTALLED

|                   |  |         |
|-------------------|--|---------|
| LARGE SCALE       |  | 40 MWp  |
| C&I               |  | 0.1 MWp |
| MG                |  | 0 MWp   |
| SHS & RESIDENTIAL |  | 0.1 MWp |

source [AFSIA](#) [IRENA](#)

## CURRENT TARIFF GRID ELECTRICITY

|      | RESIDENTIAL | COMMERCIAL | INDUSTRIAL |
|------|-------------|------------|------------|
| MIN. | \$0.014     | \$0.053    | \$0.033    |
| MAX. | \$0.128     | \$0.209    | \$0.061    |

[source](#)

## POLICY / REGULATION

- PV equipment subject to import duties and VAT but work ongoing to create exemption [link](#)
- FiT available since 2014 but no success thus far [link](#)

## ELECTRIFICATION RATE

- 41% of the population has access to electricity [link](#)
- target to reach 50% of the population with the grid by 2023 [link](#)

## NOTEWORTHY DEVELOPMENTS

- 41 MW Metoro project under construction [link](#)
- 340 MW of large scale projects being tendered
- Balama graphite mine planning 26 MW + 8.5 MWh C&I project [link](#)