Aloe Energy

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What the Mission 300 compacts say about mini-grids, grid arrival and e-waste

A reading of all 35 published national energy compacts, side by side with where people without power live.

Brandon Simons, Aloe Energy · November 2026 · Policy brief, version 1.0 · License: CC BY 4.0
Compacts compared online: aloeenergy.org/research/m300-compacts · Contact: brandon@aloeenergy.org

Key findings

- **The compacts agree on the basics.** All 35 set an access target and a private investment ask, 34 set a clean cooking target and 32 commit to tariff reform.
- **Few plan for what happens when the grid reaches a mini-grid.** 18 compacts clearly address it, through rules or a stated commitment. 15 mention mini-grids without saying what happens then.
- **Mini-grids get a small share.** Of the 21 compacts that split new connections between the grid, mini-grids and standalone solar, the median gives mini-grids 14%, from 1% to 56% (DR Congo).
- **The grid edge is bigger than the mini-grid plans.** In 15 of the 18 compacts with enough figures, fewer people are planned to get mini-grids than live without power 2 to 15 km from a power line, where grid-ready mini-grids fit best.
- **Almost none plan for solar and battery waste.** Only 4 of 35 (Benin, Burundi, Kenya and Malawi) make a commitment on e-waste or end of life, although nearly all plan to install solar home systems or mini-grids whose batteries and panels will wear out.

Why read the compacts together

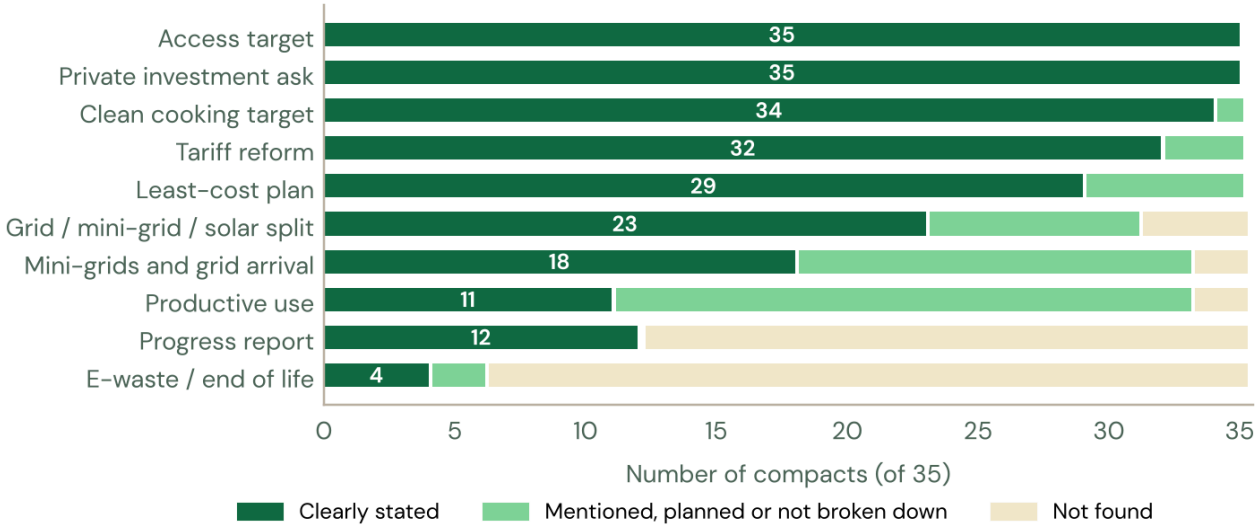
Mission 300, led by the World Bank Group and the African Development Bank, aims to connect 300 million people in Africa to electricity by 2030. Each country that joins publishes a national energy compact with its targets, reforms and investment needs. Each compact is read mostly on its own. Reading them together shows what most governments plan for, and what most leave out.

We read all 35 compacts published on the World Bank's Mission 300 pages by November 2026, plus the 12 progress reports published so far. Angola, eSwatini and South Africa, which are in the Southern African Power Pool, have no published compact.

How we read them

For ten topics, we recorded whether each compact states a clear commitment, only mentions the topic (or gives it without a breakdown), or does not cover it. Every value is quoted from the compact with its page number. Where a compact contradicts itself, we used the figure in its target table and noted the others. Compacts count people, households or connections, so we compare shares rather than totals, and where needed we convert to people using UN household sizes. We then set each compact beside Aloe's grid-edge map: how many people live without night-time light, and how far they are from an existing or predicted power line. Nothing is scored or ranked.

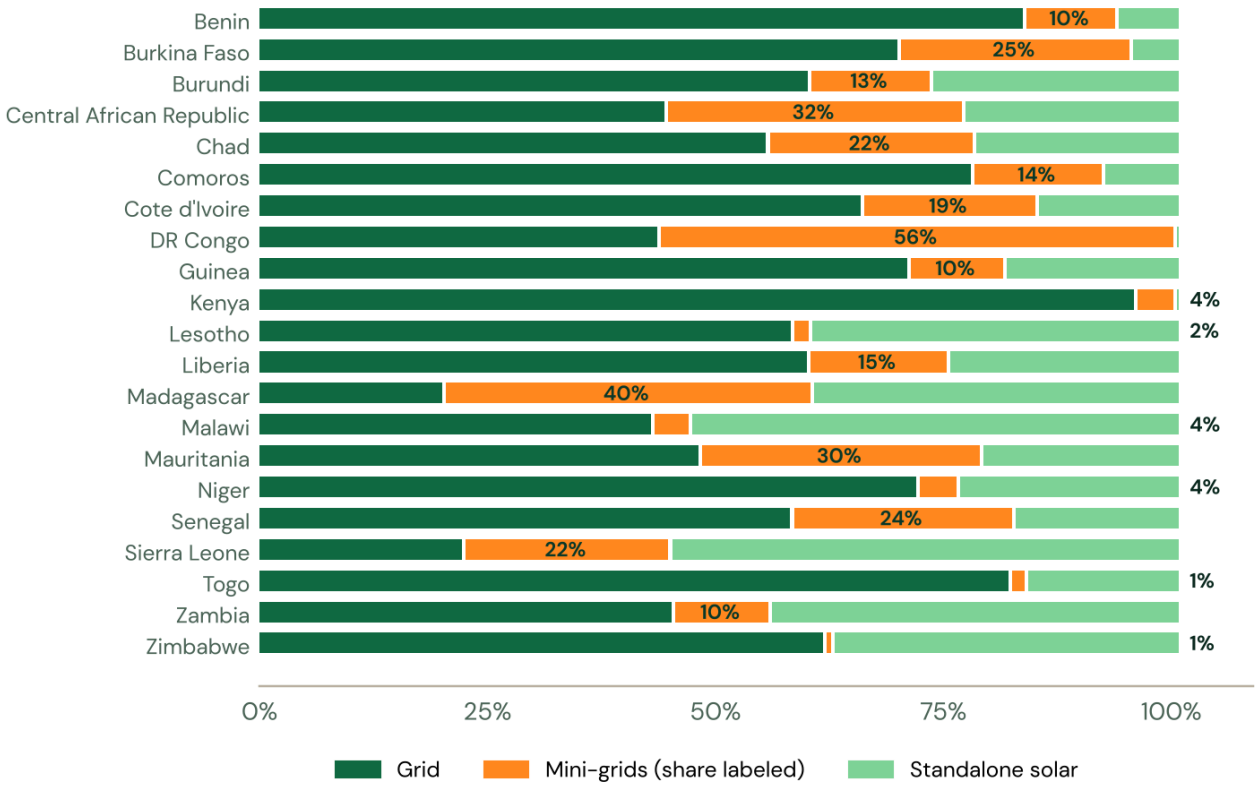
Figure 1. What the 35 compacts cover



Source: Aloe Energy reading of the Mission 300 national energy compacts and progress reports, November 2026.

Mini-grids: a small share, and little about the grid arriving

Figure 2. Planned split of new connections, compacts that give all three

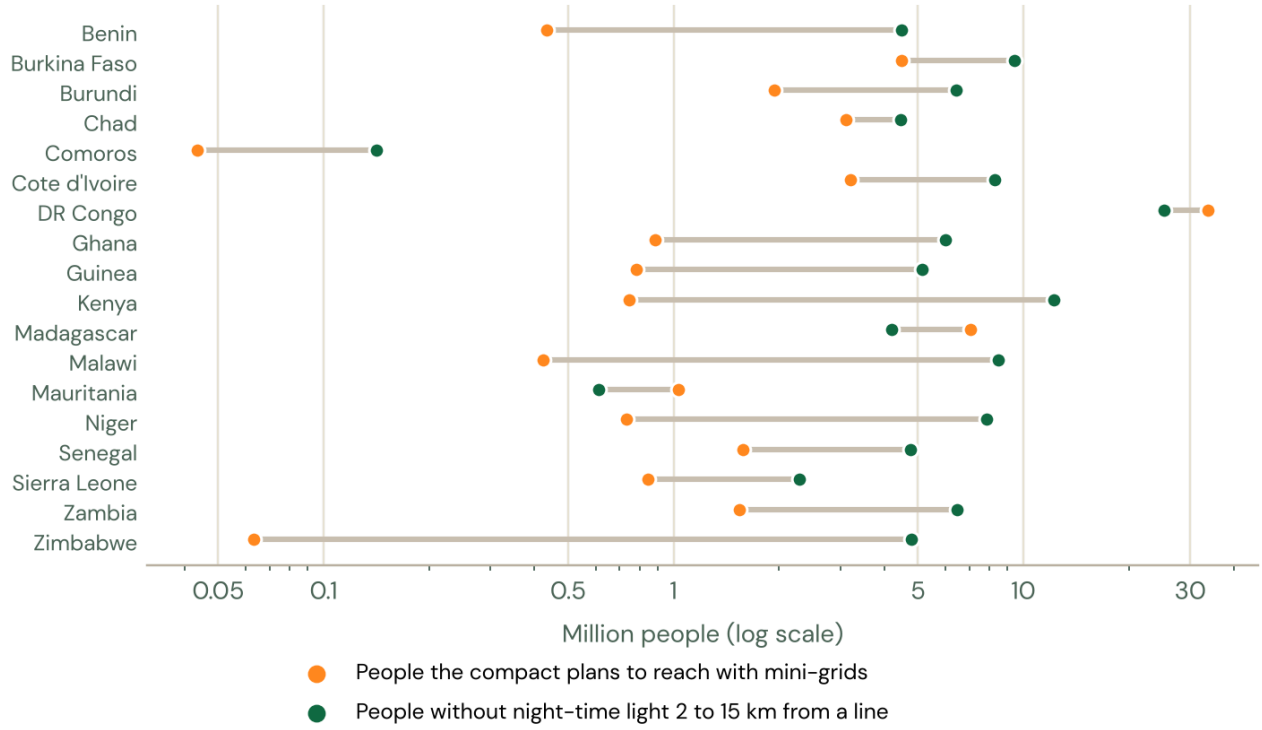


Shares of each compact's own stated split, so compacts that count people, households or connections can be read side by side. In Burkina Faso the split covers rural electrification only. Countries in alphabetical order.

Most compacts rely on grid extension and standalone solar. Mini-grids get a median of 14% of planned connections where a full split is given. DR Congo and Madagascar, where many people live far from any line, plan the largest shares.

Mini-grids built near today's grid will often meet it within a decade. What happens then decides whether the investment survives: whether the mini-grid can connect and sell power to the utility, be bought out, or keep serving its customers. 18 compacts address this clearly. Most of the rest mention mini-grids without saying what happens when the grid comes.

Figure 3. Planned mini-grid reach beside the grid-edge population



People the compact plans to reach with mini-grids, converted from households or connections where needed with UN DESA household sizes. People without night-time light 2 to 15 km from an existing or predicted line, from Aloe's grid-edge atlas (WorldPop 2020, gridfinder). Countries in alphabetical order.

People living 2 to 15 km from a power line are close enough to plan for the grid, but too far for a quick connection. That is where a mini-grid built to join the grid later can do the most good. In 15 of 18 compacts, the planned mini-grid reach is smaller than this group, often by a wide margin. Only DR Congo, Madagascar and Mauritania plan to reach more. Not everyone in this group needs a mini-grid. Some will get the grid sooner and some will choose solar at home. But the gap suggests many compacts expect the grid to arrive faster than it usually does: across Southern and Eastern Africa, power lines and plants that are now in service arrived a median of five years after their first promised date (see Aloe's paper "Promised vs built").

Solar and battery waste: almost absent

Nearly every compact plans to install solar home systems, mini-grids or both, and their batteries need replacing every few years. Yet only 4 compacts (Benin, Burundi, Kenya and Malawi) commit to anything on e-waste or end of life, and 2 more mention it in passing. In Southern Africa, all recyclers of panels and batteries are in South Africa, so waste from countries farther north must travel thousands of kilometers to reach one. Aloe's second-life atlas maps what will retire and where.

What this means

- **Write grid-arrival rules into the next compact updates.** A clear, published rule for what happens when the grid reaches a mini-grid lowers the risk for developers and lenders, and protects customers.
- **Size mini-grid programs against the grid edge, with realistic grid timelines.** Plans that assume the grid arrives on schedule leave people waiting.

- **Add end-of-life plans now.** Collection, testing and second-life reuse of batteries cost less to set up before the waste arrives than after.
- **Publish progress reports.** 12 of 35 compacts have one so far. Regular, comparable reports would show which commitments are on track.

Limitations

Compacts differ in format and detail, and a commitment may exist in a national policy that the compact does not repeat; our ratings cover what the compact itself says. Some compacts give several figures for the same target; we record the target-table figure and note the others. Converting households or connections to people uses average household sizes. "Without night-time light" is a proxy, not a measured access rate, and it overstates the unconnected population where solar home systems are common. Distances are straight lines to mapped or predicted lines. Corrections are welcome.

Sources

Mission 300 national energy compacts and progress reports, World Bank Group (downloaded November 2026). UN DESA household size data. WorldPop 2020 (1 km); gridfinder, Arderne et al. 2020 (CC BY 4.0); Natural Earth. Every value with its page and quote is shown in the compacts map at aloeenergy.org/atlas/grid-edge#compacts; the full table is available on request.

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