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Hotter homes and the race for electricity

Wednesday, 21 October 2026

African research on heat and rain meets a global demand for power
and industrial technology.

The heat that stays indoors

A house can stay hot after the street has cooled. For a resident trying to sleep, a patient recovering in a ward or a worker returning from a hot shift, that delay matters. Research published this week in Egypt and Ethiopia brings the night, the room and the building into a climate discussion often dominated by the highest outdoor temperature.

At the same time, governments are courting a different electricity customer. Data centres promise investment and computing capacity, but their demand can arrive faster than a network can expand, or fall short of what an investor reserved. The International Energy Agency's new review makes the terms of connection a central part of that bargain. Europe's selection of €3.4 billion in industrial projects adds another consideration: the technologies African economies buy and manufacture compete in markets shaped by public subsidy.

The central question is how growing electricity systems can serve useful new industry while making protection from heat affordable. Research on drought moving across the Sahel and rainfall extremes over southern Africa widens the enquiry. Buildings, herds and power networks face different hazards. Each needs decisions based on the conditions it actually encounters.

How the readings connect

Finding	How it affects other systems	Decision in view
Heat stays indoors	Housing conditions change cooling needs, electricity bills and health exposure.	Building upgrades and affordable operation.
Drought and heat move together	Several grazing destinations may face stress at the same time.	Pastoral routes, water access and regional contingencies.
Rainfall extremes change	Storage, drainage and transport face different demands from average conditions.	Design assumptions for long-lived assets.
Computing demand grows	New connections create investment opportunities and payment risks.	Who pays for capacity and what the investment adds.
Europe subsidises industrial technology	Public money changes production costs and the market for equipment.	Local capability, procurement and technology partnerships.

Cairo research finds that prolonged heat builds up inside homes

Research published 14 October 2026. Building simulations calibrated with field measurements.

Doaa Eldeeb and colleagues examine three housing types and different floor levels in Zenien, in the Greater Cairo area. Their simulations find that the duration of a heatwave explains cumulative indoor overheating more strongly than its peak outdoor temperature. Heat gains accumulate, and buildings lose some of their opportunity to cool at night.

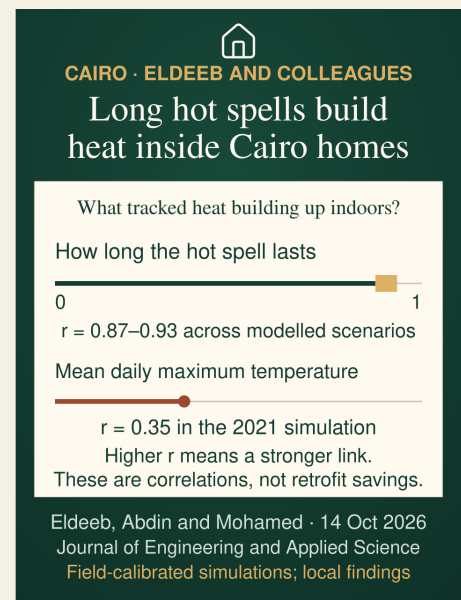
This changes the practical meaning of a heat warning. The afternoon maximum describes only part of what a resident experiences. A top-floor room beneath an exposed roof can have different conditions from a room lower down, even within the same neighbourhood. The study also shows that the relative vulnerability of building types can change under future weather assumptions.

For Egypt's housing institutions and local upgrading programmes, the research makes the existing building an important place to intervene. Roof treatment, shading and ventilation deserve appraisal alongside mechanical cooling. The World Health Organization's standing housing guidance explains how such design choices can reduce energy use as well as heat exposure. Their suitability depends on the actual building and local conditions.

The study tests models, rather than a completed retrofit programme. Its authors identify limitations in future weather generation and airflow modelling. The sound conclusion is to assess prolonged indoor exposure and test improvements locally, with residents involved in choices that affect their homes.

Sources: 1 · 2 · 4

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Ethiopian station records show why warm nights need attention

Research published 14 October 2026. Daily station records cover 1991–2025.

Tofikk Redi analyses daily maximum and minimum temperatures from 160 Ethiopian stations, comparing recent years with the 1991–2020 baseline. The paper reports increasing warm extremes, with considerable variation across elevations and regions. Its night-time findings draw attention to the loss of relief between hot days.

The distinction is useful because a daytime alert and a cool sleeping environment solve different problems. Outdoor workers may change their hours, yet return to buildings that retain heat. A clinic may remain open while its wards, medicine stores or staff accommodation become harder to keep comfortable. These are reasons to connect weather observations with building performance, rather than to assign a national temperature reading to every room.

The Ethiopian Meteorological Institute provides the underlying observations. Health authorities and regional and municipal administrations hold different parts of the response, from service arrangements to public buildings. The study supports closer attention to local exposure. It does not supply a clinical threshold or demonstrate that a particular cooling measure works.

Its station coverage, missing-data treatment and short recent comparison also warrant care. The strongest contribution is the African observational record itself: a basis for investigating where hotter nights are changing daily life, and for judging proposed solutions against local measurements.

Sources: [6](#) · [3](#)

Drought and heat can move together across the Sahel

Accepted research article published 14 October 2026.

Amitesh Sabut and colleagues follow more than 2,500 compound drought-heatwave events through space and time. They identify the West African Sahel among areas where the potential for these connected events to move is increasing. Here, movement describes weather-event footprints, rather than people.

The important implication is geographical. A herder responding to a dry grazing area depends on another area offering better conditions. If heat and moisture stress expand together across several destinations, movement may provide less relief. This is an interpretation of the mechanism, not a claim that the study measured a particular herd's losses or route.

AGRHYMET, the regional centre for agriculture, hydrology and meteorology, supplies separate pastoral monitoring in West Africa. National livestock and water services, local administrations and cross-border institutions need information about neighbouring pasture and water conditions as well as their own territory. Agreements that keep routes usable, veterinary services reachable and water points functioning can be as consequential as a warning.

The research therefore argues for testing contingencies against simultaneous pressure across several places. Its global method still needs regional validation before supporting local thresholds. Insurance triggers and emergency finance require their own definitions and decisions.

Sources: 7 · 17

Rainfall and infrastructure · Southern Africa and the Indian Ocean

Southern Africa's rain band may swing further south more often

Research published 20 October 2026. Long-term climate model comparison.

Haodong Wang and colleagues study the South Indian convergence zone, a band of converging air and rainfall extending from southern Africa into the Indian Ocean. Under a high-emissions scenario, extreme southward swings become more frequent and bring heavier rain. The comparison is between centuries, rather than a forecast for the coming season.

The result complicates the familiar choice between planning for too little water and planning for too much. A basin can face scarcity over one period and concentrated rainfall over another. Storage, drainage and the transport links used during emergencies have to cope with both. A road or bridge justified using average conditions can remain exposed to the short episode that determines whether a town stays accessible.

For infrastructure ministries, basin authorities and utilities, the relevant consequence is the choice of design assumptions over an asset's life. Regional climate services can help relate the broad mechanism to a particular catchment. The Southern African Development Community's seasonal outlook serves a separate, nearer-term purpose.

The paper supports stress-testing long-lived infrastructure against changing extremes. It does not identify a local engineering standard, establish a

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SOUTHERN AFRICA · WANG'S STUDY Extreme rain-band swings could become more frequent

Extreme swings further south

Twentieth century

1 in 22 years

Twenty-first century

1 in 10 years

Average rainfall intensity rises 20%
during the modelled extreme swings.

Wang and colleagues · 20 October 2026
Nature Climate Change
Long-term model comparison; high emissions

21 October 2026



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funded upgrade or demonstrate that every southern African country faces the same change. The distinction between a regional circulation and a project site is essential to using the finding well.

Sources: [8](#) · [18](#)

Electricity and computing · International analysis with African implications

The artificial-intelligence boom changes who pays for electricity networks

International Energy Agency report published 14 October 2026.

The International Energy Agency's Powering Artificial Intelligence surveys more than 34 jurisdictions accounting for about 90 per cent of global data-centre capacity. It finds a rapidly changing set of rules for connecting large customers, sharing network costs and managing uncertain demand.

The underlying problem is straightforward. A utility may build for electricity demand that an investor expects to use years later. If that demand arrives, the customer can help spread fixed costs and support additional supply. If it arrives late, stays smaller or disappears, someone still has to pay for the network. Connection milestones, minimum payments and charges for reserved capacity address different parts of that risk.

Cooling introduces a further trade-off. The report notes that equipment using less water can consume more electricity, while part of a centre's water footprint comes through power generation. A renewable electricity contract also needs to be understood alongside the hours in which power is required. Neither a water-efficiency claim nor an annual clean-energy purchase describes the whole operating system.

For African governments, attracting computing infrastructure can support domestic services and research. The bargaining question is what the investment adds to the electricity system and the economy around it. Energy regulators, utilities and digital ministries need a credible demand profile and an intelligible allocation of costs. The investor's promised capacity, the network's actual obligations and the public benefits should be examined together.

Sources: [9](#) · [10](#) · [14](#) · [20](#)

Industrial technology and finance · European Economic Area, with implications for African producers

Europe uses carbon-market revenue to back new industry

European Commission project selection announced 19 October 2026.

The European Commission selected 77 projects for €3.4 billion of Innovation Fund support across 23 European Economic Area countries. The money comes from emissions-trading revenue. Selection precedes grant agreements, disbursement and the eventual performance of the projects.

The project descriptions show what this public support buys: development of technologies and production capacity, including batteries, lower-emissions iron and lithium extraction linked with geothermal energy. It helps firms bear the expense of establishing new processes before those processes become commercially routine.

African producers encounter the consequences through equipment prices, technology partnerships and competition in export markets. South Africa's trade and industry department has already described the importance of industrial decarbonisation, transmission and local manufacturing. Meeting a buyer's carbon requirement is only one part of that competitive setting. Another is whether a producer has access to finance, testing and dependable electricity on terms that allow it to invest.

African budgets cannot simply reproduce Europe's subsidy envelope. More selective choices include shared testing facilities, supplier development and procurement that gives credible local firms a market. Those are propositions for industrial policy, rather than demonstrated effects of this funding round. The next evidence will be signed grants and projects entering operation, followed by their effects on costs and commercial relationships.

Sources: [11](#) · [12](#) · [13](#) · [16](#)

The places behind the evidence

The Egyptian study concerns building types in one Greater Cairo neighbourhood. Ethiopia's station study spans a country with marked differences in elevation and climate. The Sahel research concerns connected weather events across a broad region, while the southern African paper concerns an atmospheric circulation extending over land and ocean. Their maps describe different things and cannot be combined into a single ranking of national risk.

Responsibility differs accordingly. Building improvements involve owners, residents, local administrations and housing institutions. Pastoral access crosses administrative and national borders. Electricity contracts belong to the relevant regulators and licensees, while industrial support requires finance and industry institutions. African regional cooperation can make shared observations, testing and technical skills more affordable, but implementation still needs the competent institutions in each place.



Greater Cairo

Local building research



Ethiopia

Station research



Kenya

Earlier digital proposals



South Africa

Earlier industrial context

Neutral source locators at separate scales. The dot marks the Cairo study area. No hazard severity is mapped. Sources: this edition and Natural Earth boundaries.

Kenya's data centres and existing buildings

Kenya's digital ministry has promoted data centres and cloud services, and described an earlier proposal for a liquefied-natural-gas-powered data centre in Mombasa. These May and August notices establish policy interest and a proposal. They do not establish a completed plant or an agreed public liability.

The new international analysis sharpens the questions around such investment. Kenya Power and the relevant transmission licensee assess network requirements. The Energy and Petroleum Regulatory Authority exercises its tariff and regulatory functions. The Water Resources Authority considers abstraction, while environmental and relevant county institutions hold their own responsibilities. A large connection needs terms that explain how benefits and costs reach other users.

The heat studies raise a separate opportunity in Kenya's existing buildings. A willing county could test affordable cooling improvements in public facilities, using local measurements rather than importing Cairo's modelled temperatures. Roofs, shade and ventilation become part of energy planning when they can reduce the amount of powered cooling needed. No Kenya-specific retrofit result is claimed here.

How cooler buildings change the demand for power

Nexus Deep Dive

Cooling begins with a building and ends in a wider economy. Its walls, roof and surroundings influence how much heat enters and how quickly it leaves. The equipment selected to remove that heat creates a demand for electricity, maintenance and sometimes water. A purchase that looks inexpensive on delivery day can leave a household or institution with running costs it cannot sustain.

The housing studies make a useful distinction between exposure and the ability to pay for relief. An owner may be able to replace a roof or install efficient equipment. A tenant may control neither. Public improvements can also be captured through higher rents, leaving the intended beneficiary unable to remain. A credible housing response therefore needs residents' consent and attention to tenure and rent, alongside a technically effective treatment.

Electricity planning then brings different customers into the same system. A data centre can be an anchor customer whose payments support useful capacity. Households, water services and public facilities also depend on that network, but enter negotiations with very different resources. The public interest lies in knowing the additional costs and benefits of a proposed connection, rather than assuming either that the new customer is a burden or that any large investment benefits everyone.

These choices affect emissions as well as adaptation. Better building design and efficient cooling can reduce energy demand. A fast expansion of inefficient equipment can make later decarbonisation harder. The World Health Organization's housing guidance links health protection with lower energy use. The opportunity is especially important when public procurement influences the equipment, materials and skills available in a local market.

Europe's industrial support reveals another part of the same story. The capacity to make a product competitively depends partly on who finances testing, early production and learning. African institutions can strengthen their bargaining position by retaining engineers, commissioning independent tests and negotiating access to operating data. Buying equipment without the means to maintain or assess it leaves a recurring dependence on the supplier.

Efficiency also changes who can afford to use a service. Lower running costs can make cooling accessible to more households and allow a clinic to use rooms that were previously uncomfortable. Electricity demand may still grow as access expands, even when each room needs less energy. That can represent successful adaptation. Planning has to account for the wider use of cooling, while assessing who obtains better conditions, at what total cost and with what emissions.

Sources: [2](#) · [3](#) · [9](#) · [11](#)

Cooling that public buildings can afford to run

Future Build

One willing Kenyan county could use its existing buildings to establish a small, credible market for affordable cooling. The proposition is a pilot in ten public facilities, selected after a building and heat assessment. Its purpose would be to compare improvements such as shading, roof treatments and ventilation with efficient powered cooling, using the total cost of providing a usable room.

The county department responsible for the buildings would own the work. Health staff, public works engineers, finance and procurement officers would define the requirements together, with an independent university or engineering partner measuring performance. The county assembly's budget authority and the Public Procurement and Asset Disposal Act, 2015 would continue to apply. Any expenditure would need an approved budget and the appropriate procurement process. This is a proposal, with no approval or financing claimed.

The first 100 days would establish the baseline, consult users and publish a costed specification. Existing maintenance allocations could meet eligible works, subject to budget approval. Capital improvements and continuing service costs would be identified separately. Procurement could compare lifetime costs and measured performance, with terms that leave maintenance skills and records with the county. Smaller local suppliers would need appropriately sized opportunities and credible testing, rather than specifications written around one manufacturer.

Simple temperature loggers, electricity meters and maintenance records would be sufficient for the initial evaluation. Data would describe rooms and services without identifying patients or tracking individuals. Indoor air quality, accessibility, staff and user comfort, water use and maintenance demands would constrain the choice of treatment. Payments and any performance conditions would need clear rules for changes in weather and how a building is used.

Over three years, repeated measurements would show which improvements remain effective and affordable through hot periods. Poor workmanship, weak maintenance and disruption during installation are real risks. Independent verification and published costs would make the comparison useful beyond the pilot. By 2035, tested specifications, trained local firms and comparable procurement results could support wider public-building upgrades and cooperation with other African cities. Expansion would follow independently verified performance and costs.

Sources: [1](#) · [2](#) · [5](#)

The decisions still open

Decision	Timing	Evidence to follow
Indoor heat in Cairo and Ethiopia	Next hot-season assessments	Room measurements, retrofit evaluations and evidence about vulnerable users.
Sahel pastoral conditions	Current monitoring and the next contingency decisions	Regional validation and simultaneous stress across alternative grazing areas.
Southern African infrastructure	Design and rehabilitation decisions over the asset's life	Catchment-scale assessment and updated engineering assumptions.
Large data-centre connections	Before firm network commitments	Credible demand, connection terms and costs allocated to each beneficiary.
European industrial projects	Grant preparation, with results expected in early 2027	Signed agreements, payment milestones and operating projects.

Research, geography and authorship

The review considered authoritative African regional and national sources, original research and international policy documents. North, West and the Sahel, Central, East and the Horn, Southern and Indian Ocean Africa were included in the source sweep. This was a selected review, not an audit of every country. The source register identifies the desks and the depth of each check.

The six principal publications or decisions fall between 14 and 20 October 2026. Earlier Kenyan and South African policy notices and regional outlooks are dated as context. Observations, simulations, comparative policy analysis and grant selection establish different things. No clinical result, retrofit saving, local infrastructure failure or African effect of the European grants is inferred without separate evidence.

The Cairo and Ethiopian articles were reviewed in full. The Sahel paper's displayed accepted-publication abstract and the southern African paper's abstract and extended data support the findings reported here. Their complete methods were not independently audited or replicated. The World Health Organization's material and institutional and legal sources provide standing context. Proposals and the connections drawn between studies are the edition's analysis.

Ahmed Nadhir Omar serves as County Executive Committee Member for Health in Garissa County. This edition is independent personal analysis based on public sources and does not speak for the County Government of Garissa or any other institution.

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