Planning a Solar Factory in Burkina Faso: A Guide to Port Selection and Inland Logistics

Port Selection & Inland Logistics — A Strategic Guide

Content Partner: J. v. G. technology GmbH

Turnkey solar module production lines — since 1997

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Technical Overview: Solar Factory Logistics and Port Selection in Burkina Faso

Created as part of the PVKnowHow Knowledge Network

Prepared by J.v.G. Technology GmbH

European specialists in turnkey solar module production lines

The Landlocked Challenge

No Direct Sea Access

Burkina Faso sits ~1,000 km from the nearest port — all imports must transit coastal nations

Cost Amplifier

Logistics costs in sub-Saharan Africa can reach 30–40% of goods value vs. <15% in advanced economies

Structural Dependency

Any disruption — administrative delays, road deterioration, or security events — immediately affects supply chains

⚠ For a solar factory project, logistics is not a footnote — it is a primary CAPEX and timeline risk factor.

Key Project Data

~15–20%	1–3 wks	~1,000 …	3
Logistics Cost Share	**Inland Transport Time**	**Distance to Port**	**Key Gateway Ports**
Estimated share of total CAPEX for factory equipment transport	Typical transit time from port to Ouagadougou (port-to-site)	Average distance from Burkina Faso to nearest coastal gateway port	Tema (Ghana), Lomé (Togo), Abidjan (Côte d'Ivoire)

Project Type: Solar module factory logistics setup · **Region:** Burkina Faso / West Africa · **Source:** PVKnowHow / J.v.G. Technology GmbH

Why Port Selection Is a Strategic Decision

What Port Choice Determines

- Total transport cost and transit time
- Customs clearance reliability and predictability
- Availability of specialized heavy-lift handling
- Resilience to political or operational disruption

Common Planning Errors

- Choosing port based on price alone — ignoring transit time
- Underestimating dwell time and clearance delays
- Failing to verify oversized cargo handling capability
- No contingency port identified in case of disruption

Port selection must be evaluated at project planning stage — not after shipment is booked.

Overview of the Three Key Gateway Ports

🇬🇭 Tema — Ghana

- Historically lowest inland transport costs to Ouagadougou
- ~1,040 km road distance to Burkina Faso capital
- English-speaking advantage for documentation
- Processed ~1.2M TEUs in 2022; major industrial port hub
- English language: administrative clarity for European shippers

🇹🇬 Lomé — Togo

- Burkina Faso's main trade artery: ~40% of all inbound cargo
- Deep-water free port — no river bar, direct vessel access
- ~990 km road distance; significant time and cost reductions observed
- 1.91M TEUs handled in 2023; rapidly expanding capacity
- Stable port operations, active transit-friendly policies

🇨🇮 Abidjan — Côte d'Ivoire

- Accounts for ~30–35% of Burkina Faso corridor traffic
- Largest capacity in region: up to 2.5M TEUs annually
- Rail connection available (Abidjan–Ouagadougou); road is primary mode
- Most attractive for medium/long-term cost forecasts
- Political stability risk factor must be assessed at booking stage

Port Comparison: Cost vs. Speed vs. Reliability

Criterion	Tema (Ghana)	Lomé (Togo)	Abidjan (Côte d'Ivoire)
Road Distance to Ouaga	~1,040 km	~990 km	~1,150 km (road) / rail option
Inland Cost Level	Historically lowest (road)	Lower port + inland costs	Competitive long-term
Port Throughput (2022–23)	~1.2M TEU	~1.9M TEU	~2.5M TEU capacity
Deep-Water Access	Moderate (upgrading)	Yes — deep-water free port	Yes — modern terminals
Cargo Share to Burkina Faso	Significant (growing)	~40% of all inbound cargo	~30–35%
Political Risk Factor	Low	Low–Medium	Monitor (historical disruptions)
Rail Option Available	No (road only)	No (road only)	Yes — Abidjan–Ouaga rail

No single port is optimal in all dimensions. Selection depends on cargo type, budget, timeline, and political context at the time of shipment.

Inland Logistics Challenges

Road Infrastructure

- Only a fraction of Burkina Faso's road network is fully paved
- Paved roads suffer from potholes, limited signage, and poor markings
- Heavy-load transport stresses infrastructure further — oversized cargo requires route assessment
- Speed limits: 80 km/h for heavy goods vehicles

Customs & Border Crossings

- Multi-border transit: minimum two border crossings per route
- Border crossing costs in Africa equivalent to ~1,600 km of inland transport (World Bank)
- Clearance time in Ouagadougou: ~10 days average (ship arrival to final clearance)
- Red tape and fragmented regulations add unpredictable delays

Trucking & Transport Operators

- Market dominated by informal small-scale trucking operators
- Trucking cartels and red tape reduce competitiveness and predictability
- Transport regulations applied inconsistently across borders
- Reliable operators with transit experience are essential for sensitive cargo

Risk Factors: Security, Weather, Infrastructure

Operational Risks

- **Security:** Parts of the Sahel corridor face elevated risk — route planning must account for no-go zones
- **Weather:** Rainy season (June–September) significantly degrades road quality and transit times
- **Infrastructure failure:** Bridge weight limits and road closures can force costly detours
- **Port congestion:** Peak seasons create dwell-time spikes — cargo can sit 2–4 weeks

Political & Regulatory Risks

- Political instability in transit countries can redirect all cargo to alternative routes
- Sanctions or border closures (ECOWAS) create sudden corridor shifts
- Corridor dominance shifts over time — Lomé gained share after Abidjan civil unrest (2010–11)
- Always maintain a backup port option in the logistics plan

⊗ Security conditions in Burkina Faso and the broader Sahel region require ongoing assessment — consult in-country freight partners for current route status.

Role of Freight Forwarders & Insurance

Freight Forwarder Functions

- Pre-clearance documentation preparation in origin country
- Coordination of transit permits across multiple jurisdictions
- Selection of vetted local trucking operators with proven transit records
- Real-time tracking and escalation on delays

Why an Experienced Forwarder Is Non-Negotiable

- Informal and fragmented transport market requires local knowledge
- Language barriers: French-speaking zones vs. English-speaking Ghana
- Bribery and informal checkpoints exist — experienced operators navigate efficiently
- A proven turnkey provider typically has established forwarder partnerships in-region

Insurance Considerations

- Standard marine cargo cover may not extend to inland overland segments
- Specialized all-risk inland transit insurance is required
- High-value industrial cargo (laminators, inverters, racking systems) needs declared value policies
- Confirm coverage for security-related losses in conflict-risk zones

Timeline Realities: What to Expect

1

Weeks 1–2: Port Arrival & Clearance

Vessel arrival → customs documentation → port clearance

Typical Ouagadougou clearance: ~10 days from ship arrival

2

Weeks 2–3: Inland Transit

Truck convoy from port to Ouagadougou / project site

~990–1,150 km depending on chosen corridor; 1–2 weeks typical

3

Concurrent: Border Crossings

Minimum 2 border crossings — each adds 1–3 days under normal conditions

Peak seasons or security checks can double waiting times

4

Total: 1–3 Weeks Inland Transport

Best-case: ~7 days (favorable conditions, experienced operator)

Realistic buffer scenario: plan for 3 weeks minimum for critical equipment

⚠ Transit time variability is high. Construction schedules built on best-case logistics scenarios consistently fail.

Strategic Planning Importance

1

Logistics Planning at Pre-FEED Stage

Port and corridor selection must be resolved before equipment procurement — not after

2

Cargo Engineering Review

Oversized modules (laminators, presses) require route surveys, bridge load assessments, and permit planning

3

Buffer Time Integration

Factory commissioning dates must build in logistics buffer — minimum 15–20% of planned inland transit duration

An experienced European turnkey provider integrates logistics planning into the project methodology from day one — reducing surprises for new manufacturers entering the West African market.

Practical Insight: The 15–20% Buffer Rule

Apply a 15–20% Buffer To:

- Total inland transit time estimate
- Inland logistics cost budget
- Port dwell time assumptions
- Customs clearance timelines
- Project commissioning dates tied to equipment arrival

Why This Buffer Is Consistently Justified

- Informal transport market creates non-linear delays
- Weather events (rainy season) are predictable but timing is not
- Border administration can change without notice
- Security rerouting can add 200–400 km to a journey
- No buffer = systematic cost overrun and schedule failure

Projects that integrate realistic buffers from the outset consistently outperform those that optimize for best-case scenarios.

Conclusion: Logistics as a Key Success Factor

Port Selection Is Strategic
Lomé, Tema, and Abidjan each offer distinct trade-offs in cost, speed, and reliability — choice must match project profile

Inland Complexity Is Real
Road quality, customs friction, security, and weather make inland transit the most variable element in the supply chain

Expert Partners Are Essential
Experienced freight forwarders and a proven turnkey manufacturing partner reduce risk — especially for first-time entrants

Early Planning

Integrate logistics in pre-FEED to reduce surprises

Right Port

Choose port by cost, speed and reliability trade-offs

Buffer Management

Maintain 15–20% time and cost reserves

Logistics is not a secondary consideration in West African greenfield factory projects — it is a primary determinant of project timeline, cost, and ultimately, delivery success.

About the Content Partner

J. v. G. technology GmbH — The DESERT Company

Founded in 1997 in Bavaria, Germany. Family-owned engineering company specializing in turnkey solar module production lines.

More than 90 factory projects delivered worldwide.
On-site team training included — no prior manufacturing experience required.

Key areas:

Turnkey PV manufacturing lines | DESERT Technology® | TÜV-certified module designs | Factory planning to production

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