



# Fuel-Efficient Stoves & Heaters Production Line

Complete Turnkey Business Proposal



*Made-in-China supplier reference: real fuel-efficient stoves & heaters production line equipment.*

|                                    |                                        |                                     |                                |
|------------------------------------|----------------------------------------|-------------------------------------|--------------------------------|
| <b>1 model</b><br>launch appliance | <b>1 fuel</b><br>validated fuel family | <b>100%</b><br>flue/leak inspection | <b>7-13</b><br>entry workforce |
|------------------------------------|----------------------------------------|-------------------------------------|--------------------------------|

Prepared for investment planning in Afghanistan and regional export markets. Final specifications, pricing, civil works, and utility loads require supplier quotation and site survey.

## Executive Summary

A micro/small sheet-metal appliance workshop producing one tested solid-fuel cookstove or room-heater family through combustion and safety design, sheet blanking, punching, bending and rolling, combustion-chamber and flue fabrication, fixture welding, refractory or ceramic-liner preparation, grate/door/damper assembly, heat-resistant coating, controlled curing, leak and stability checks, emissions/efficiency testing and traceable packing.

### Why this project fits Afghanistan

- Cold Afghan winters and expensive fuel create demand for safer efficient heaters.
- Local sheet metal and clay/refractory inputs can support assembly and repair.
- One tested model avoids uncontrolled variations that raise carbon-monoxide risk.
- Efficiency and safety claims require combustion tests, not visual inspection.

### Sanaatchi delivery scope

- Factory setup planning, supplier pre-qualification, and technical comparison
- Complete production-line and individual equipment supply
- Factory layout, utilities, civil-work coordination, installation, and commissioning
- Raw-material sourcing, trial-batch qualification, and repeat supply planning
- International logistics, customs documentation, operator training, spare parts, and after-sales support

#### Recommended configuration

Choose one fuel and one use: a vented wood/biomass room heater or a cooking stove, never both under one untested design. Begin with CNC plasma or shear, press brake, slip roll, punches, welding fixtures, refractory-liner molds, heat-resistant paint booth/oven, flue-leak rig and an instrumented combustion-test hood. Freeze the design only after local-fuel efficiency, CO, surface-temperature, stability and durability tests.

## Manufacturing Process & Product Portfolio

### Integrated process flow



### Target products

| Product                       | Typical specification                                                                            | Primary market                                                 |
|-------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Vented solid-fuel room heater | Rated fuel/output, flue, clearance, efficiency, CO, surface temperature and user instructions    | Homes, shops and institutions                                  |
| Efficient biomass cookstove   | Approved fuel, pot interface, thermal efficiency, emissions, stability and safe-use instructions | Households and small food businesses after separate validation |

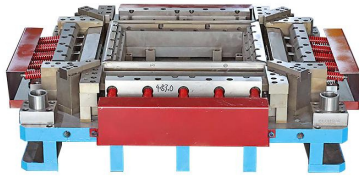
A heater and cookstove need different performance tests. Indoor unvented solid-fuel heaters are excluded. Acceptance uses representative Afghan fuel and records fuel moisture, burn rate, useful heat, flue draft/leakage, CO/CO<sub>2</sub>, particulate proxy where available, surface temperatures, tip/stability, door/grate durability and safe shutdown. Independent laboratory review is strongly recommended.

## Core Equipment Schedule

| Step | Equipment                           | Function                                  | Indicative parameter |
|------|-------------------------------------|-------------------------------------------|----------------------|
| 1    | CNC plasma or shear and punches     | Produces repeatable sheet blanks/openings | One model            |
| 2    | Press brake and slip roll           | Forms panels, chamber and flue            | Sheet range          |
| 3    | Welding fixtures and extraction     | Controls airtight body geometry           | Dedicated jig        |
| 4    | Refractory-liner molds and mixer    | Makes insulating combustion liner         | Approved recipe      |
| 5    | Heat-resistant paint booth and oven | Cures durable exterior finish             | Recorded cure        |
| 6    | Instrumented combustion test hood   | Measures safety and efficiency            | Local-fuel protocol  |

Equipment models are indicative and will be matched to the selected capacity, local raw-material tests, available utilities, and preferred automation level.

## Reference Equipment Gallery



*Made-in-China supplier reference: real fuel-efficient stoves & heaters production line equipment.*



*Made-in-China supplier reference: second real machine configuration for fuel-efficient stoves & heaters production line.*

Images are supplier references for configuration discussion; final equipment appearance and model may differ.

## Plant, Raw Materials & Utility Requirements

### Raw materials

- Low-carbon sheet and certified heat-resistant sheet where required
- Local clay/refractory only after thermal and cracking trials
- Grates, hinges, seals, dampers, handles, guards and flue parts
- Heat-resistant coating, welding supplies and packing

### Utilities & infrastructure

- Stable three-phase power with protected distribution
- Guarded hot-work or forming zones and emergency stops
- Covered raw-material and finished-goods storage
- Fume/dust extraction, fire protection and disciplined housekeeping
- Calibrated flue-gas, temperature, mass and draft instruments with safe test chimney

### Quality, safety and environmental controls

- Verify sheet and refractory batches
- Gauge body, flue, door and air-control geometry
- Leak-test every sampled combustion/flue path
- Record liner cure and coating cure
- Measure stability and touch-surface temperatures
- Run local-fuel efficiency, CO and durability protocol

A final factory layout must reserve safe forklift routes, maintenance clearances, raw-material segregation, finished-goods storage, fire protection, ventilation, and future expansion space.

## Indicative Investment & Implementation Plan

### LOW-ENTRY CONFIGURATION

A sub-US\$50k entry is possible with flexible sheet-metal equipment and one tested design, but the combustion hood and safety measurements cannot be omitted. Automatic stamping, enamel coating and multiple models are excluded.

| Component                             | Indicative range | Notes                               |
|---------------------------------------|------------------|-------------------------------------|
| Cutting, bending and rolling workshop | US\$10k-27k      | One appliance model                 |
| Welding fixtures and refractory tools | US\$5k-15k       | Controlled assembly                 |
| Finishing and combustion laboratory   | US\$8k-24k       | Mandatory validation                |
| Freight, training and starter spares  | US\$4k-12k       | Compact installation                |
| Indicative installed low-entry total  | US\$27k-78k      | Building and working stock excluded |

### Implementation sequence

|         |            |                                                                                                        |
|---------|------------|--------------------------------------------------------------------------------------------------------|
| Phase 1 | 2-5 weeks  | Confirm product specification, representative raw material, buyer, capacity, site and utilities        |
| Phase 2 | 3-7 weeks  | Run supplier trials with the buyer material and freeze the balanced machine, tooling and utility scope |
| Phase 3 | 8-22 weeks | Manufacture or refurbish, inspect, document and ship the contracted equipment                          |
| Phase 4 | 3-12 weeks | Install, commission, train operators and pass material-specific acceptance tests                       |

Ranges are planning targets for a low-cost entry configuration, exclude land, and remain subject to confirmed capacity, supplier quotation, freight, duties, exchange rates and site conditions.

## Next Steps & Contact Information

---

### Recommended next steps

- Confirm target products, hourly output, and packaging formats
- Test representative raw materials and document quality requirements
- Complete site survey covering electricity, water, fuel, drainage, roads, and warehouse space
- Request comparable technical and commercial quotations from shortlisted suppliers
- Finalize financing, logistics, installation, training, and spare-parts plan

#### **Sanaatchi Industrial Vision Group**

Afghanistan Office: +93 779 819 820 | [info@sanaatchi.com](mailto:info@sanaatchi.com)

China Office: +86 159 5171 6867 | [china@sanaatchi.com](mailto:china@sanaatchi.com)

Website: [www.sanaatchi.com](http://www.sanaatchi.com)

### Research and image references

- <https://www.alibaba.com/showroom/stove-making-machine.html>

- <https://gdzhengqi.en.made-in-china.com/product/GmUYqohjXBVc/China-Customize-Precision-Die-Cooktop-Stove-Stamping-Die-Sheet-Metal-Progressive-Die.html>