SANAATCHI
INDUSTRIAL VISION GROUP

Biomass Fuel-Pellets Production Line

Complete Turnkey Business Proposal

Made-in-China supplier reference: real biomass fuel-pellets production line equipment.

300-500 kg/h	**1 recipe**	**6-10 mm**	**8-13**
entry output	**controlled feed**	**pellet diameter**	**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 compact fuel-pellet line converting one qualified dry Afghan crop-residue or clean wood-residue blend through contaminant removal, controlled size reduction, moisture measurement and drying where required, buffer mixing, ring-die pelletizing, counterflow cooling, fines screening and recycle, batch release and moisture-protected bagging. Feedstock acceptance and ash, durability, bulk-density, fines, moisture and calorific-value testing are integral to the line.

Why this project fits Afghanistan

- Afghan pruning, sawmill and selected crop residues can displace imported solid fuel.
- Pellets reduce storage volume and provide a metered boiler fuel.
- One controlled feedstock avoids unstable ash, slagging and pellet strength.
- Drying energy and dust/fire controls determine whether the business is economic and safe.

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	Start with one documented feedstock recipe and a 300-500 kg/h ring-die line. Buy pre-dried residue when possible; add a guarded low-temperature dryer only after measuring seasonal moisture and fuel cost. Include metal removal, hammer mill, live-bottom buffer, conditioner, pellet mill, counterflow cooler, screen/fines return, dust collection, scales and 15-25 kg bagging. Do not promise premium domestic-heating pellets until ash and emissions are independently verified.

Manufacturing Process & Product Portfolio

Integrated process flow

Target products

Product	Typical specification	Primary market
Industrial biomass fuel pellet	One approved residue blend, diameter, moisture, ash, durability, fines, density and calorific value	Boilers, kilns and institutional heating after combustion trial

Fuel pellets are not animal-feed pellets. The contract must fix the residue species, contaminants, maximum moisture and ash, chlorine/sulfur risk, particle size and required fuel class. Commissioning measures dryer energy, die temperature, amperage, throughput, pellet durability, fines, bulk density, net calorific value, ash behavior and combustion in the buyer's actual boiler.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Feed inspection, magnet and stone trap	Protects process and fuel quality	One residue blend
2	Hammer mill and aspiration	Controls particle size and dust	Screen selected by feed
3	Moisture meter and optional dryer	Stabilizes pelletizing moisture	Seasonal need verified
4	Buffer, conditioner and ring-die mill	Forms dense fuel pellets	300-500 kg/h
5	Counterflow cooler and fines screen	Hardens pellets and recycles fines	Closed fines loop
6	Fuel laboratory and bagging station	Releases tested saleable batches	15-25 kg bags

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 biomass fuel-pellets production line equipment.

Made-in-China supplier reference: second real machine configuration for biomass fuel-pellets production line.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- One qualified crop-residue or clean wood-residue blend
- Approved small binder only if validated and declared
- Moisture-resistant sacks, labels and pallets
- Lubricants, dies, rollers and wear parts

Utilities & infrastructure

- Stable three-phase electricity with verified connected load
- Guarded machinery, lockout, ventilation and fire protection
- Covered segregated raw-material and finished-goods storage
- Maintenance tools, safe lifting and critical spare parts
- Explosion-relief, spark detection and dust extraction designed for biomass
- Dryer heat source and emissions controls only if wet feed is accepted

Quality, safety and environmental controls

- Identify feed species, contamination, moisture and ash
- Control milled particle size and dryer outlet
- Record die temperature, load and throughput
- Test dimensions, moisture, durability and fines
- Measure bulk density, ash and calorific value
- Complete buyer-boiler combustion and slagging trial

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

The lowest credible entry buys naturally dry or pre-dried residue and produces one industrial-boiler pellet. A dryer, premium household-fuel certification and multiple feed recipes are added only after trials.

Component	Indicative range	Notes
Cleaning, milling and feed buffer	US$18k-45k	One residue blend
Pellet mill, cooler, screen and dust control	US$38k-90k	300-500 kg/h basis
Laboratory and bagging	US$10k-24k	Fuel release tests
Freight, installation and spares	US$14k-34k	Dies and commissioning
Indicative installed low-entry total	US$80k-193k	Dryer, building and feedstock 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

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Research and image references

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