Productive uses of energy are essential for reducing the costs of energy from minigrids, helping reduce subsidy needs and make funding go further.

https://rmi.org/minigrids-money-reduce-costs/
The productive use sector in Ethiopia is centered on agricultural productivity, and overlaps with activity in this sector.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Loads</th>
<th>Key references</th>
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</table>
| Smallholder irrigation     | Pumps, Standalone and grid connected systems | • National strategy for irrigation  
• NEP-II, ATA mapping & solar pilots |
| Mechanization              | Grain mills, Threshers and coffee washing stations | • National strategy for mechanization  
• Value chain analyses; AGP-II |
| Meat, dairy and poultry    | Cold chain, milking and milk collection, Incubators, heating and lighting | • Value chain analyses in meat, dairy and poultry |
| Horticulture               | Cold chain, Lighting and heating    | • National strategy for horticulture  
• Value chain analyses |
| Small businesses           | Welding; woodworking; hair salons; tailoring; entertainment; food & drink | • Existing business activities in electrified rural areas |
| Institutional loads        | Schools: lighting, ICT, Health: lighting, cooling, medical eqpt | • Ministries of Health & Education  
• NEP-II, Geospatial mapping |
A range of promising Productive Use appliances in Ethiopia but limited supply capacity

- **Agricultural value chains** (wheat, teff, coffee, oily seeds, soybeans)
  - Irrigation pumps
  - Threshers
  - Hullers and pulpers
  - Mills
  - Oil presses

- **Dairy and poultry value chains**
  - Milking machines
  - Dairy cold storage
  - Pasteurization units
  - Egg incubators

- **Commercial value chains** (carpentry, metal works, restaurants, hair saloons)
  - Ovens
  - Dough mixers
  - Welding machines
  - Hair dryers (hood)
In the Ethiopian context, the availability and financing of Productive Use appliances faces several bottlenecks

- Detailed market assessment (accurate evaluation of number and scale of appliances needed)
- Development and enforcement of standards applicable to productive use appliances
- Gaps in supply chain and limited capacity from both local manufacturing and import perspective
- Policy challenges
  - FOREX
  - VAT exemption/ application scheme to
- Access to finance (loans and FOREX) is a major challenge for supply chain
- Stakeholder alignment and coordination
  - Development agencies – alignment of electrification and economic development goals
  - Communities – electrification systems, PU and payments (ability and will)
  - Government – “Task force” co-ordination key
  - Tailored community engagement mechanisms
- Capacity building needs
  - Fostering awareness of MFI and banks on business models for PU appliances
  - ESA - standards development and implementation
  - Appliance suppliers – quality assurance and business management
For communities to effectively develop productive uses, a range of barriers need to be overcome.

### Needs

- Productive use included in electrification planning
- Access to markets for processed goods
- Access to stable input sources
- Last mile supply chains and after sales services
- Import and manufacture of appropriate appliances
- De-risking of financing for appliance supply chains

### Enablers

- Affordable, reliable electricity
- Policy and regulation
- Local agricultural value chain infrastructure
- Community productive uses
- Efficient, affordable equipment and appliances
- Small business expertise
- Microfinance solutions
- Understanding of increased productivity, income, and production costs
- Awareness of productive uses
- Recognition of multi sector implications
- Enabling environment to de-risk and promote productive uses
- Awareness of potential businesses or improvements for current businesses
- Training on new business models
- Knowledge transfer of best/worst practices
- Access to local banking solutions
- Products that are affordable to customers
- Appropriate repayment mechanisms
- Awareness of productive uses
- Recognition of multi sector implications
- Enabling environment to de-risk and promote productive uses
A successful productive use program must intervene across supply, demand and capacity building

Interventions:

Examples of national activities:
- Appliance Availability
- Finance & Affordability
- Training & Capacity building

Local activities:
- Customer Surveys
- Equipment Database
- Bulk Procurement
- Concessional Finance Scheme
- Value Chain Analysis
- Microfinancing
- Tariff Structures
- Ed: Appliance Financing
- Ed: Appliance Access
- Enterprise Development Training

Pilots