

Table S1 Conversion factors from physical unit to coal equivalent

	Firewood	Coal	LPG	Gasoline	Electricity	Solar	Biogas
	kg/kg	kg/kg	kg/kg	kg/kg	kg/kWh	kg/MJ	kg/m ³
	kgC/kg	kgC/kg	kgC/kg	kgC/kg	kgC/kWh	kgC/MJ	kgC/m ³
Conversion factor	0.571	0.714	1.714	1.471	0.404	0.034	0.714

Table S2. Family characteristics.

	ALTEs /m	DIST /km	hNUM	INCOME /Yuan	FARM /ha	FOREST /ha	ECOLAND /ha
Min	0.0	12.3	1	300	0.00	0.00	0.00
Mean	603.8	40.1	3.7	62453	0.41	0.05	0.89
Max	1129.5	99.2	10.0	360000	1.68	16.75	68.34
	hAREA /m ²	PIG	ElecApp	A65	A14	aFEMALE	Livelihood
Min	20.0	0.0	1.0	0%	0%	0.00	0.0
Mean	200.8	1.5	12.3	44%	57%	0.40	2.9
Max	5.0	70.0	58.0	2%	37.5%	1.00	7.0

ALTEs: altitude; Dist: distance to county; hNUM: number of permanent resident population; INCOME: household annual income; FARM: farmland area; FOREST: economic forest area; ECOLAND: ecological forest area; hAREA: house area; PIG: number of raised pigs; ElecApp: number of household appliances; A65: percentage of members aged over 65; A14: percentage of members aged below 14; aFEMALE: percentage of adult female members; Livelihood: diversity of livelihood; egyT: total amount of household energy consumption.

Table S3 Overall situation of rural household energy consumption

	Firewood	Coal	LPG	Gasoline	Electricity	Solar	Biogas
Min kg ce	0	0	0	0	0	0	0
Mean kg ce	2742.00	174.00	58.33	405.80	933.90	0.05	6.05
Max kg ce	52103.80	12857.00	3087.45	30719.90	6787.20	1.56	625.46
Popularity rate	84.34%	21.20%	20.72%	41.20%	99.04%	12.05%	3.86%