Total Energy Access questionnaire

Practical Action has proposed a definition of energy access that seeks to better understand people's experience of energy. The Total Energy Access Minimum Standards and the Energy Supply Index are a way of measuring people's access to energy – both are on page 2. For more information look in the Poor people's energy outlook (PPEO) reports (www.practicalaction.org.uk/ppeo2010). A questionnaire has been produced that lets you assess the energy access situation of a household in the dimensions that matter to people.

The Total Energy Access Minimum Standards defines the level of energy service that every household needs, wants and has a right to. It measures the energy service at point of use, and includes the full range of energy services used in the home. The TEA questionnaire provides a set of questions that you can ask a household member to determine if they meet the Minimum Standards – and thus determine if they have Total Energy Access.

The TEA questionnaire comprises of 16 questions. An additional 33 questions have been provided if you are interested in getting more information about the energy services used by the household, but these aren't required to judge whether a household has Total Energy Access.

The Energy Supply Index is a framework for assessing the quality of energy supply accessed by a household. It includes levels according to the quality of energy supply, with 0 being the lowest and 5 the highest level of access. The index measures the three main supply dimensions of energy access – household fuels, electricity and mechanical power. A household's position on the Energy Supply Index (ESI) can be determined by discussing their supply situation with them.

By completing the TEA questionnaire and the ESI you will have a good understanding of the energy access situation of the household. It is important that both questionnaires are completed for the household in order to get the full picture. This shouldn't take more than 15 – 20 minutes for a single household. The results can be put directly into the "Survey data collection sheet" that can be downloaded from the Total Energy Wiki. If you don't have a laptop for the survey, you can print out a copy and carry it with you.

Once you have completed your survey, you can upload the data to the Total Energy Wiki on Energypedia – www.energypedia.info/totalenergywiki You can upload the data directly to the Total Energy Wiki site, or input the data to the "Excel upload form Total Energy Wiki" excel spreadsheet and then upload the file. If you are uploading directly to the site, you have to input the household data one at a time. If you have a large amount of data it is recommended to use the excel spreadsheet as this will be quicker. You can print the easy-to-fill table found at the end of this document to collect the data you are gathering while you are on the field.

The Total Energy Wiki lets you view graphs of your results, it will tell you:

- How many households have Total Energy Access
- How many households have met the minimum standards for each energy service
- What the average ESI score is for the survey

It will also share the data with others. All the results will be publicly available so you can search and compare with different communities and countries.

For further information or instructions about completing the Total Energy Access questionnaire contact Practical Action staff at ppeo@practicalaction.org.uk

Total Energy Access (TEA) - Minimum Standards of access for a household

Energy service		Minimum standard
Lighting	1.1	300 lumens for a minimum of 4 hours per night at household level
Cooking and water heating	2.1	1 kg woodfuel or 0.3 kg charcoal or 0.04 kg LPG or 0.2 litres of kerosene or biofuel per person per day, taking less than 30 minutes per household per day to obtain
	2.2	Minimum efficiency of improved solid fuel stoves to be 40% greater than a three-stone fire in terms of fuel use
	2.3	Annual mean concentrations of particulate matter (PM2.5) < 10 µg/m3 in households, with interim goals of 15 µg/m3, 25 µg/m3 and 35 µg/m3
Space heating	3.1	Minimum daytime indoor air temperature of 18°C
Cooling	4.1	Households can extend life of perishable products by a minimum of 50% over that allowed by ambient storage
	4.2	Maximum apparent indoor air temperature of 30°C
Information and communications	5.1	People can communicate electronic information from their household
	5.2	People can access electronic media relevant to their lives and livelihoods in their household

Energy Supply Index – quality levels for a household

Energy supply	Level	Quality of supply
Household fuels	0	Using non-standard solid fuels such as plastics
	1	Using solid fuel in an open/three-stone fire
	2	Using solid fuel in an improved stove
	3	Using solid fuel in an improved stove with smoke extraction/chimney
	4	Mainly using a liquid or gas fuel or electricity, and associated stove
	5	Using only a liquid or gas fuel or electricity, and associated stove
Electricity	0	No access to electricity at all
	1	Access to third party battery charging only
	2	Access to stand-alone electrical appliance (e.g. solar lantern, solar phone charger)
	3	Own limited power access for multiple home applications (e.g. solar home systems or power-limited off-grid)
	4	Poor quality and/or intermittent AC connection
	5	Reliable AC connection available for all uses
Mechanical Power	0	No household access to tools or mechanical advantages
	1	Hand tools available for household tasks
	2	Mechanical advantage devices available to magnify human/ animal effort for most household tasks
	3	Powered mechanical devices available for some household tasks
	4	Powered mechanical devices available for most household tasks
	5	Mainly purchasing mechanically processed goods and services.

Source: Poor people's energy outlook 2012

How to complete the questionnaire

IF you want to participate in the Total Energy Wiki you can take the following steps:

1. Download the 'Total Energy Access questionnaire' document from the Total Energy Wiki and print it out.
2. Print the 'TEA easy-to-fill data sheet' for as many households as you need. Each data sheet allows you to fill in data for 10 households – this will make it quick for you to complete and means you don't need to carry piles of paper around with you.
3. Get permission from a community or set of households to complete the survey. You will need about 15-20 minutes from a member of each household to answer all the questions.
4. For each household, answer each of the TEA questions with either a 0 or a 1 (pages 4 – 8), and identify the ESI level (page 9). Enter the answers into the TEA data sheet.
5. You can determine if a household meets each of the TEA Minimum Standards by following the logic questions below each set of questions. E.g. To meet the minimum standard for Lighting 1.1: L1 = 1AND L2=1.
6. Back at a computer with internet you need to upload the data to the Total Energy Wiki. Either upload each household's data from the tab: 'Add new dataset via web form' (note – you need to be registered with Energypedia) OR input the data to the Excel TEA data sheet and follow the tab: 'Upload data from Excel file'.
7. You can then browse your dataset on the Total Energy Wiki, share with colleagues, partners or donors. Etc.

We are requesting that people uploading household data enter information about themselves and their organisation. This will allow us to track who is feeding in data and get in touch with you if we need to.

Please provide the details of the interviewer conducting the household survey:

Name	
Organisation	
Job title	
Email address	

To validate the questionnaire, the following information of the household should be included:

Name *(optional)*	
Job *(optional)*	
Number of people in the household *(optional)*	
GPS coordinates of household *(mandatory)*	

TEA Questionnaire - Lighting			
	QUESTION	**CRITERIA**	**ENTER SCORE (0 or 1)**
L1	Do you have a fixed or portable electric light that you use regularly in your house?	No = 0	
		Yes = 1	
L2	IF YES – Do you use this light for more than 4 hours per day?	No = 0	
		Yes = 1	

To meet the minimum standard for Lighting 1.1:	L1=1 **AND** L2=1	1.1 – Met / Not met

Additional Lighting questions (outside of TEA)			
L3	How many electric lights do you have in your house?	1 = One or two 2 = Three or four 3 = More than four	
L4	Do you feel that the lighting you have is adequate for your needs?	1 = Very adequate 2 = OK – but would like a bit more 3 = Poor 4 = Very bad	
L5	In what ways would you like to change your lighting?		
L6	What prevents you from changing your lighting?		

TEA Questionnaire - Cooking and Water heating

	QUESTION	**CRITERIA**	**ENTER SCORE (0 or 1)**
CW1	Do you mostly use liquid or gas fuel or electricity for cooking?	No or Don't know = 0 Yes = 1	
CW2	IF NO OR DON'T KNOW – Do you have an "improved" solid fuel cookstove which uses less fuel than an open fire?	No or Don't know = 0 Yes = 1	
CW3	Do you have a chimney or smoke hood over your cookstove or fire?	No = 0 Yes = 1	
CW4	Does your household spend less than 30 minutes a day collecting firewood?	No = 0 Yes = 1	
To meet the minimum standard for: Cooking and Water heating 2.1:		CW1=1, **OR** CW2=1 **AND** CW4=1	2.1 – Met / Not met
Cooking and Water heating 2.2:		CW2=1 **OR** CW1=1	2.2 – Met / Not met
Cooking and Water heating 2.3:		CW1=1, **OR** CW2=1 **AND** CW3=1	2.3 – Met / Not met

Additional Cooking and Water heating questions (outside of TEA)			
CW5	What fuel do you use most of the time?	1 = Wood 2 = Charcoal 3 = Dung/residues 4 = Biogas 5 = Kerosene 6 = LPG 7 = Electricity 8 = Ethanol 9 = Coal 10 = Other	
CW6	How many months per year do you mainly use this fuel?	Give number	
CW7	How many times per day do you use this fuel?	Give number	
CW8	How many times per day do you cook using another fuel?	Give number	
CW9	What is the other fuel you use for cooking?	1 = Wood 2 = Charcoal 3 = Dung/residues 4 = Biogas 5 = Kerosene 6 = LPG 7 = Electricity 8 = Ethanol 9 = Coal 10 = Other	
CW10	Using the list below, describe the type of stove you use for most of your cooking.		
	1 Traditional (3-stone) fire	8 Ethanol stove	
	2 Traditional tripod stove	9 Kerosene wick stove	
	3 Traditional metal charcoal stove	10 LPG stove	
	4 Improved biomass chimney stove	11 Electric stove	
	5 Improved biomass stove without chimney	12 Kerosene pressure stove	
	6 Improved charcoal stove with ceramic liner	13 None	
	7 Biomass stove with smoke hood	14 Other (please describe)	
CW11	If you use more than one stove for cooking, using the list above describe the second kind of stove you use for your cooking (if only one stove is used put '0')		
CW12	How do you obtain your main fuel?	1 = Gather 2 = Purchase 3 = Gather & purchase 4 = Produce at home	
CW13	How long does it take you to obtain your fuel each month, at this time of year?		___hrs____mins
CW14	Do you spend more than 10% of your income on cooking fuel?	No = 0 Yes = 1	

CW15	Do you feel that the stoves in your household burn cleanly or are polluting?	1 = Very clean 2 = OK – but would like to improve 3 = Rather polluting 4 = Very polluting 5 = Don't know	
CW16	How do you feel about the safety of cooking facilities in your household?	1 = Very safe 2 = OK – but would like to improve 3 = Rather dangerous 4 = Very dangerous 5 = Don't know	
CW17	Please describe any ways in which you would like to change your cooking habits?		
CW18	What prevents you from changing your cooking?		

TEA Questionnaire - Space Heating			
	QUESTION	**CRITERIA**	**ENTER SCORE (0 or 1)**
S1	Is your house warm enough all year round without heating?	No = 0 Yes = 1	
S2	IF NO – do you have a purpose-built heating device or heating stove?	No = 0 Yes = 1	
To meet the minimum standard for Space Heating 3.1:		S1=1 **OR** S2=1	3.1 – Met / Not met

Additional Space heating questions (outside of TEA)			
S3	What do you use to heat the rooms in your house?	0 = None used 1 = Open fire 2 = Normal cooking stove 3 = Purpose-built heater 4 = Multi-purpose cooker and heater 5 = Other	
S4	If 'other' please describe		

S5	What fuel do you use for heating?	0 = None	
		1 = Wood	
		2 = Charcoal	
		3 = Dung/residues	
		4 = Biogas	
		5 = Kerosene	
		6 = LPG	
		7 = Electricity	
		8 = Ethanol	
		9 = Coal	
		10 = Other	
S6	How many months per year do you heat your house?	___ months	

TEA Questionnaire - Cooling			
	QUESTION	**CRITERIA**	**ENTER SCORE (0 or 1)**
C1	Do you use an appliance to keep food cool in your house most of the time? (e.g. refrigerator, coolbox)	No = 0	
		Yes = 1	
C2	Is your house cool enough all year round without cooling?	No = 0	
		Yes = 1	
C3	IF NO – Do you use an air cooling device? (eg an electric fan or air conditioning)	No = 0	
		Yes = 1	
To meet the minimum standard for Cooling 4.1:		C1=1	4.1 – Met / Not met
Cooling 4.2:		C2=1 **OR** C3=1	4.2 – Met / Not met

Additional Cooling questions (outside of TEA)			
C4	What appliance do you use to keep food cool in your home?	0 = None used	
		1 = Electric refrigerator	
		2 = Gas refrigerator	
		3 = Coolbox	
		4 = Cool storage cupboard or room	
		5 = Clay pot	
		6 = Other	
C5	If 'other' please describe		
C6	What method do you use to cool air in your house?	0 = None	
		1 = Air conditioner	

		2 = Electric fan	
		3 = Leave windows and doors open	
		4 = Keep light from coming through windows	
		5 = Other	
C7	If 'other' please describe		
C8	How many months per year do you cool your house?	___ months	

TEA Questionnaire - Information and communications			
	QUESTION	**CRITERIA**	**ENTER SCORE (0 or 1)**
IC1	Do you have a fixed or mobile phone in your house?	No = 0	
		Yes = 1	
IC2	Do you use a radio or TV in your house?	No = 0	
		Yes = 1	
IC3	Do you have internet access in your house?	No = 0	
		Yes = 1	
To meet the minimum standard for Information and communication 5.1: Information and communication 5.2:		IC1=1 **OR** IC3=1 IC2=1 **OR** IC3=1	5.1 – Met / Not met 5.2 – Met / Not met

Additional Information and Communications questions (outside of TEA)			
IC4	Do you have regular access to a fixed or mobile phone outside of your household?	0 = Do not have access	
		1 = In a neighbour's or friend's house	
		2 = At a local shop/cafe/kiosk/ community centre	
		3 = At your place of work	
		4 = Other	
IC5	If 'other', please describe…		
IC6	Do you have regular access to a radio or TV outside of your household?	0 = Do not have access	
		1 = In a neighbour's or friend's house	
		2 = At a local shop/cafe/kiosk/ community centre	
		3 = At your place of work	

		4 = Other	
IC7	If 'other', please describe…		
IC8	Do you have regular access to the internet outside of your household?	0 = Do not have access	
		1 = In a neighbour's or friend's house	
		2 = At a local shop/cafe/kiosk/ community centre	
		3 = At your place of work	
		4 = Other	
IC9	If 'other', please describe…		

Energy Supply Index (ESI)

This index is to be completed for each household alongside the TEA Minimum Standards. Discuss the options with a household member and select the most applicable level for the household.

Energy supply	Level	Quality of supply	HH level
Household fuels	**0**	Using non-standard solid fuels such as plastics	
	1	Using solid fuel in an open/three-stone fire	
	2	Using solid fuel in an improved stove	
	3	Using solid fuel in an improved stove with smoke extraction/chimney	
	4	Mainly using a liquid or gas fuel or electricity, and associated stove	
	5	Using only a liquid or gas fuel or electricity, and associated stove	
Electricity	**0**	No access to electricity at all	
	1	Access to third party battery charging only	
	2	Access to stand-alone electrical appliance (eg solar lantern, solar phone charger)	
	3	Own limited power access for multiple home applications (eg Solar home systems or power-limited off-grid)	
	4	Poor quality and/or intermittent AC connection (remove 240V as non-standard)	
	5	Reliable AC connection available for all uses (remove 240V as non-standard)	
Mechanical Power **(e.g. Milling, pumping, grinding, pressing, de-husking, drilling)**	**0**	No household access to tools or mechanical advantages	
	1	Hand tools available for household tasks	
	2	Mechanical advantage devices available to magnify human/animal effort for most household tasks	
	3	Powered mechanical devices available for some household tasks	
	4	Powered mechanical devices available for most household tasks	
	5	Mainly purchasing mechanically processed goods and services.	

Printable TEA easy-to-fill data sheet

TEA and ESI Questionnaire										
	Households									
GPS										
TEA										
L1										
L2										
L3										
L4										
L5										
L6										
CW1										
CW2										
CW3										
CW4										
CW5										
CW6										
CW7										
CW8										
CW9										
CW10										
CW11										
CW12										
CW13										
CW14										
CW15										
CW16										
CW17										
CW18										
S1										
S2										
S3										
S4										
S5										
S6										
C1										
C2										
C3										
C4										
C5										
C6										
C7										
C8										
IC1										
IC2										
IC3										
IC4										
IC5										
IC6										
IC7										
IC8										
IC9										
ESI										
HF										
E										
MP										