



SE4ALL KNOWLEDGE HUB

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ESMAP Knowledge Exchange Forum
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Objective



- Facilitate dialog on global energy knowledge
- Identify key "global public good knowledge" products
- Facilitate multi stakeholder partnerships needed to deliver the products
- Work on cross-cutting knowledge products that affect the three goals of SE4ALL
- Work closely with thematic and regional hubs in areas of intersection

Work Components

Pillar 1: Scientific and modeling work focused on data, development pathways and scenario analysis

Pillar 2: Frameworks to track and monitor progress

- **Global Tracking Framework (GTF)**
- **Readiness for Investment in Sustainable Energy (RISE)**

Pillar 3: Knowledge management of program and policy experiences

- **Case Study Series**
- **State of Energy Access Report (SEAR)**

Global Tracking Framework



- Biennial Updates of GTF: second GTF targeted for Mid-2015
- Integration into Post-2015 Agenda
- Improvements to GTF Methodology

	Recommended targeting of effort over next five years
Energy access	<p>Work to improve energy questionnaires for global household survey networks</p> <p>Pilot country-level surveys to provide more precise and informative multitier measures of access to electricity and clean fuels</p> <p>Explore alternative institutional models for scaling-up and sustaining multitier measures globally</p>
Renewable energy	<p>Improve data and definitions for bio-energy and sustainability</p> <p>Capture renewable energy used in distributed generation</p> <p>Capture renewable energy used off-grid and in micro-grids</p> <p>Promote a more harmonized approach to target-setting</p>
Energy intensity	<p>Integrate data systems on energy consumption and associated output measures</p> <p>Strengthen country capacity to collect data on sectoral (and ideally subsectoral process) intensities</p> <p>Improve data on physical activity drivers (traffic volumes, number of households and floor space, etc.)</p> <p>Improve data on energy efficiency targets, policies, and investments</p>



GTF – Energy Access



- Framework extends traditional measurement approaches to include heating and community and productive applications of energy
- WB/ESMAP will mainstream the use of a multi-tier framework for access measurement across the SE4ALL partnership and for global reporting purposes

GTF – Energy Access



Framework for multi-tier measurement of household electricity access

- Based on six attributes of electricity supply.
- As electricity supply improves, an increasing number of electricity services become possible.

Attributes	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Peak available capacity (W)	-	>1	>50	>500	>2,000	>2,000
Duration (Hrs)	-	≥4	≥4	≥8	≥16	≥22
Evening supply (Hrs)	-	≥2	≥2	≥2	≥4	≥4
Affordability	-	-	√	√	√	√
Legality	-	-	-	√	√	√
Quality (voltage)	-	-	-	√	√	√
Reliability	-	-	-	-	√	√

Index of access to electricity supply = $\sum(P_T \times T)$
 with P_T = Proportion of households at the T^{th} tier
 T = Tier number {0,1,2,3,4,5}

- Based on ownership of appliances.

Tier 0	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
-	Task lighting AND phone charging (OR radio)	General lighting AND television AND fan (if needed)	Tier 2 AND any low-power appliances	Tier 3 AND any medium-power appliances	Tier 4 AND any high-power appliances

Index of use of electricity services = $\sum(P_T \times T)$
 with P_T = Proportion of households at the T^{th} tier
 T = Tier number {0,1,2,3,4,5}

GTF – Energy Access



Framework for multi-tier measurement of household cooking solutions

- Multi-tier technical measurement of the primary cooking solution for health (pollution), safety and efficiency attributes in two steps:
 - Three-level measurement based on the direct observation of the cookstove and fuel.
 - Manufactured non-BLEN cookstoves (medium grade) are further categorized into four grades based on technical attributes. This grade categorization would only be possible for cookstoves that have undergone third-party testing. Non-BLEN manufactured cookstoves that have not been tested are assumed to be Grade D.

Low grade	Medium grade	High grade
Self-made ¹	Manufactured ²	BLEN ³
cookstove	non-BLEN cookstove	cookstove

	Low grade	Medium grade			High grade
Attributes	Grade-E	Grade-D	Grade-C	Grade-B	Grade-A
Efficiency	Self-made cookstoves or equivalent	Certified Non-BLEN manufactured Cookstoves			BLEN cookstoves or equivalent
Indoor pollution		Uncertified Non-BLEN manufactured cookstoves			
Overall pollution					
Safety					

¹ A self-made cookstove refers to a three-stone fire or equivalent, typically made by an untrained person without the use of pre-manufactured parts.

² A manufactured cookstove refers to any cookstove available in the market (including artisans and small local producers).

³ BLEN cookstove refers to stove-independent fuels (such as biogas, LPG, electricity, natural gas). Non-BLEN cookstoves include most solid and liquid fuels for which performance is stove dependent.

Source: World Bank/ESMAP

- Technical performance adjusted for conformity (C) (use of chimney, hood, or skirt and regular cleaning & maintenance)

Level-0	Level-1	Level-2	Level-3	Level-4	Level-5
				Grade-A w/o C	Grade-A w/ C
			Grade-B w/o C	Grade-B w/ C	
		Grade-C w/o C	Grade-C w/ C		
	Grade-D w/o C	Grade-D w/ C			
Grade-E w/o C	Grade-E w/ C				

- Multi-tier measurement of other attributes of actual use:

	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
Capacity (no use of secondary stove)	-	-	-	-	✓	✓
Availability (no use of secondary stove)	-	-	-	-	✓	✓
Quality of fuel	-	-	-	✓	✓	✓
Affordability (no use of secondary stove)	-	-	-	-	✓	✓
Legality	-	-	-	✓	✓	✓
Convenience	-	-	-	-	✓	✓

- The minimum tier rating across attributes is taken as the tier rating of the household.

$$\text{Index of access to household cooking} = \sum(P_T \times T)$$

with P_T = Proportion of households at the T^{th} level.

T = Level number {0,1,2,3,4,5}

GTF – Energy Access



Potential Channels to scale-up the use of the Multi-tier Access Framework

	Channel-1 Country Specific Household Energy Surveys	Channel-2 Integration into Omnibus Household Surveys	Channel-3 Centralized Survey Covering All Countries
Brief Description	Core and Non-Core questions administered through country specific household energy surveys .	A few additional questions integrated into omnibus surveys such as LSMS and DHS.	Core questions administered through a global household survey (as for example Gallup World Poll).
Sample Size in each country	✔ ~3,000 respondents	✔ ~5,000+ respondents	✔ ~1,000 respondents (3000-5000 for India & China)
Margin of error (95% confidence)	✔ ~±1.8%	✔ ~±1.2%	✔ ~±1.9% (3 year rolling average)
Frequency	✘ 3-5 years (Project Survey Schedule)	✘ 3-5 years (Omnibus Survey Schedule)	✔ Annual (World Poll Schedule)
Adequacy of Data for Analysis	✔ Full multi-tier analysis ✔ Household, productive and community uses of energy.	✘ Minor improvement in data for household analysis. ✘ Productive and community uses not covered.	✔ Full multi-tier analysis ✔ Household, productive and community uses covered.
Implementation logistics	✘ Difficult: Requires country-by-country engagement through projects and programs.	✘ Difficult: Requires country-by-country engagement through statistical agencies. Omnibus survey networks reluctant to add questions.	✔ Easy: Centralized administration through a professional agency.
Cost	✘ ~250,000 USD per country	✔ Low incremental cost	✔ 2.0 M USD per annum globally

Readiness for Investment in Sustainable Energy (RISE)



- A suite of policy indicators that measures the quality of investment climate for energy in specific countries across the three goals
- Via partnership framework including SE4ALL partners, USAID and CIF, work will involve:
 - Establishing policy environment indicators
 - Piloting policy environment indicators
 - Scaling-up to the global level

RISE Indicators



SUSTAINABLE
ENERGY FOR ALL

CROSS CUTTING INDICATORS

- 
PRICE OF ELECTRICITY
 Price of average consumption of electricity for industrial and residential users.
- 
FOSSIL FUEL SUBSIDIES
 Fossil fuel subsidy in \$/unit of energy for oil, gas and kerosene.
- 
COMMERCIAL VIABILITY OF UTILITIES
 Debt service coverage ratio and technical and commercial losses.

ENERGY ACCESS INDICATORS

- 
ELECTRIFICATION PLAN
 Whether plan includes on and off-grid planning. Timeframe of electrification plan.
- 
INCENTIVES FOR GRID EXPANSION
 Quality of subsidies for grid extension.
- 
PERMITTING MINI-GRIDS
 Time, cost, and number of procedures to permit a mini-grid.
- 
ENABLING MINI-GRID DEVELOPERS
 Clarity of regulation. Freedom to set tariffs. Duty exemptions for RE technology.
- 
CONNECTING TO THE GRID
 Time, cost and number of procedures for residential customers to connect to the grid.

ENERGY EFFICIENCY INDICATORS

- 
PRICE SIGNALS
 Rewards for greater efficiency. Price of energy compared to cost of supply.
- 
ACCESS TO INFORMATION
 Quality of electricity usage reporting. Labeling schemes for appliances and equipment.
- 
ENABLING UTILITIES TO INVEST IN EE
 Mandates, M&V, decoupling sales from revenue, and sharing savings revenue.
- 
ENABLING PUBLIC ENTITIES TO INVEST IN EE
 EE product and service procurement, benchmarking for buildings.
- 
ENABLING INDUSTRY TO INVEST IN EE
 Mandates, savings certificate market, equipment standards.
- 
ENABLING EE BUILDINGS
 Building codes, energy rating system, energy usage real estate disclosure policy.
- 
NATIONAL EE PLAN
 Binding residential, industrial and commercial targets. EE prioritized in loading order.

RENEWABLE ENERGY INDICATORS

- 
COMPETITIVE RE PRICING
 Price/MW of wind, hydro and solar. Length of price guarantee.
- 
REDUCING RISK FOR RE
 Subsidies sourced from tariff. Times for price change specified in law.
- 
ENABLING TRANSMISSION FOR RE
 Transmission connection and usage rules and costs clearly defined.
- 
ENABLING PERMITTING PROCESS
 Time, cost, and number of procedures to permit and operate RE project.
- 
RE INTEGRATION PLAN
 Publicly available resource data/mapping. Transmission expansion plan that accounts for RE development.

Best Practice Case Series



- Aim is to present most salient examples of best practice on SE4ALL goals
- Knowledge Hub will:
 - Define structure & standard for the series
 - Identify key cases to be covered
 - Invite contributions from those best placed to document cases in depth
- Cases will be contributed by SE4ALL partners

State of Energy Access Report (SEAR)



- Periodical report that presents a comprehensive and detailed mapping of the status of energy access over time
 - Status and progress at country/program level
 - Best practices and lessons learnt – business and institutional models/approaches, financing, policy frameworks
 - Emerging trends in demand and supply
 - Developments in analytics (e.g. monetizing health benefits of clean cooking)
 - Impact studies
 - Etc.

Partners



Program Activity	Partners
PILLAR TWO: TRACKING PROGRESS	
1) Global Tracking Framework	
A) Global Tracking Framework 2015 Report	GTF Consortium, including: GACC, IEA, IIASA, IPEEC, IRENA, Practical Action, REN21, UNDP, UN-Energy, UNEP, UNF, UNIDO, WEC, WHO
B) Global Tracking Framework Improvements	
i) <i>Energy Access</i>	Energy+, EC, KfW/GIZ, Practical Action, CIF/SREP
ii) <i>Energy Efficiency</i>	IEA, EE Hub, IPEEC, etc.
iii) <i>Renewable Energy</i>	IRENA, UNEP, etc.
2) Readiness for Investment in Sustainable Energy	
PILLAR THREE: MANAGING KNOWLEDGE	
1) Best Practice Case Studies	
WB + SE4ALL Stakeholders	
2) State of Energy Access Report	
ESMAP + SE4ALL partners	

Timetable



SUSTAINABLE
ENERGY FOR ALL

	2013 Q4	2014				2015			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
PILLAR TWO: TRACKING PROGRESS									
1) <u>Global Tracking Framework</u>									
A) Global Tracking Framework 2015 Report									
B) Global Tracking Framework Improvements									
i) <i>Energy Access</i>									
* Completing conceptual framework									
* Piloting multi-tier framework									
* Global scale-up									
ii) <i>Energy Efficiency [TBD]</i>									
iii) <i>Renewable Energy [TBD]</i>									
C) Support to Post 2015 Process									
2) <u>Readiness for Investment in Sustainable Energy</u>									
i) Finalizing indicator development									
ii) Piloting of indicators									
iii) Global scale-up									
PILLAR THREE: MANAGING KNOWLEDGE									
1) <u>Best Practice Case Studies</u>									
2) <u>State of Energy Access Report</u>									
i) Preparation for Release #1									
ii) Preparation for Release #2									

Budget Requirements



Activity	Estimated Cost	Budget												Shortfall
		2014				2015				2016				
		ESMAP	SREP	BB	Other	ESMAP	SREP	BB	Other	ESMAP	SREP	BB	Other	
PILLAR TWO: TRACKING PROGRESS														
Global Tracking Framework														
A) Global Tracking Framework 2015 Report	300			150				150						0
B) Global Tracking Framework Improvements: Energy Access	2,840	500		140		500				1,000				700
Readiness for Investment in Sustainable Energy														
i) Finalizing indicator development	160			80	80									0
ii) Piloting of indicators	750	50	350			250								100
iii) Global scale-up (2014/2015)	4,000													4,000
PILLAR THREE: MANAGING KNOWLEDGE														
State of Energy Access Report	2,000	500				1,000				500				0
Total ('000 USD)	10,050	1,850				1,900				1,500				4,800