E4A Year of Action 2016
Executive Summary

THE ENERGY ACCESS CHALLENGE

Over one billion people globally lack access to electricity. Basic energy services such as lighting and charging are an important first rung in the energy access ladder, yet realizing the broader socio-economic benefits of electricity access will require the delivery of higher levels of energy services – encompassing household, income-generating, and community applications such as health and education – to off-grid populations. Mainstream appliances and other end-use technologies consume too much power to be cost-effectively supported by available off-grid energy supply technologies, posing a significant barrier to delivering these life-transforming energy services.

THE ENERGY EFFICIENCY OPPORTUNITY

Demand-side energy efficiency, when coupled with innovative off-grid energy supply solutions, can transform energy access markets by increasing the affordability of energy services. Super-efficient appliances, income-generating equipment, and other end-use technologies can unlock a wider range of energy services – such as communication, cooling, agro-processing, water pumping, health services, and more – and at the same time radically reduce the required energy supply investment to make off-grid energy services more affordable. For example, our research shows that coupling solar home systems with super-efficient appliances, including a TV, fan, mobile charger, and LED lights, requires 75% less power and reduces overall costs by as much as 50%. Energy efficiency reduces the amount of new energy supply required to provide service, and it enhances the value of existing supply.

THE ENERGY FOR ACCESS (E4A) COALITION

The Efficiency for Access Coalition (E4A) is a new collaborative effort led by the Clean Energy Ministerial’s Global Lighting and Energy Access Partnership (Global LEAP) and Sustainable Energy for All (SE4All). Through an increased emphasis on the game-changing power of energy efficiency as an energy access resource, the Coalition’s goal is to achieve universal access to enhanced energy services beyond lighting by 2030. E4A aims to accelerate progress towards the recently announced Sustainable Development Goal 7 (SDG7) through a comprehensive approach that integrates end-use efficiency within broader electrification efforts, making the most of every watt of electricity supplied and providing a critical pathway to expand access faster and at least cost. Simply put, the global community cannot cost-effectively achieve universal access to enhanced modern energy services within the ambitious SDG7 timeline without a greatly increased focus on the development of complementary markets for the high-performing end-use products that will enable those services.

E4A will provide a cross-cutting platform within the SE4All framework to unite
and amplify current efforts, mobilize the resources needed to catalyze emerging markets for super-efficient end-use technologies, and strengthen linkages with supply-side energy access efforts. All told, E4A will accelerate the development and deployment of super-efficient and high-quality end-use technologies that expand the human and economic benefits of broader energy access efforts.

The official global launch of E4A will take place on December 7, 2015, at the 21st annual Conference of Parties (COP21) in Paris, France. The launch will kick off a Year of Action between COP21 and COP22 to increase global awareness of the efficiency–access nexus and mobilize commitments from public- and private-sector partners to help unlock the massive potential of energy efficiency as an energy access resource.

This document lays out the vision for E4A’s Year of Action, identifying efforts to date, priorities for action and a plan for 2016.

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2. Super-efficient appliances increase the utility and affordability of off-grid power systems such as solar home systems ([Source](#))
Acknowledgements

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We also wish to thank our colleagues on the Clean Energy Ministerial team within the Office of International Climate and Clean Energy at the U.S. Department of Energy, who have lightened long days with camaraderie and dedication to the work of accelerating the transition to clean energy around the world.

Finally, we would like to acknowledge the off-grid companies and appliance manufacturers who have engaged on Global LEAP programs and are working tirelessly to deliver energy services to the unserved millions globally. The cause of universal access to energy depends on their success, household by household, town by town.
The Challenge

THE ENERGY ACCESS CHALLENGE. More than one billion people worldwide lack access to electricity, resulting in significant impacts on economic development and quality of life. The majority of these un-electrified populations globally —over 84% —live in rural areas, where off-grid solutions such as solar home systems and renewable or hybridized mini-grids will play a key role both in the short and long terms.

THE OFF-GRID ENERGY SUPPLY CHALLENGE. Off-grid energy supply, where available, is nonetheless severely constrained. Despite the decreasing costs of decentralized energy technologies and rapidly growing global markets for off-grid energy solutions, energy supply in off-grid contexts is limited and expensive for extremely poor off-grid consumers. Conventional end-use appliances and equipment draw too much energy to be cost-effectively supported by off-grid technologies such as solar home systems and small-scale mini-grids.

THE ENERGY SERVICES CHALLENGE. By raising the costs of off-grid power, and minimizing its usefulness, this dual challenge of constrained energy supply and inefficient end-use technologies poses a significant barrier to achieving energy access goals. To enable the life-changing benefits of access to modern energy services — from lighting...
and communications, to entertainment and education, to micro-enterprises and public services – this challenge must be solved.

**The Opportunity**

**CAPITALIZING ON GLOBAL MOMENTUM.** The energy access challenge is receiving unprecedented attention. The global community, working through SE4All and bolstered by the recently adopted Sustainable Development Goal 7 (SDG7)\(^4\), has rallied to provide universal access by 2030.

**A COMPREHENSIVE APPROACH TO ENERGY ACCESS.** Achieving these goals and realizing the broader socio-economic benefits of universal access will require a comprehensive approach that addresses both energy supply and energy usage. Demand-side energy efficiency is an essential companion to electrification efforts, particularly in off-grid contexts, as it optimizes the services provided by limited and expensive power. With significant support from philanthropy, governments, multi-laterals, and impact investors, markets for off-grid clean energy solutions such as solar home systems and mini-grids are growing quickly and have already served millions of un- and under-electrified consumers worldwide.

But the global market for high-quality, affordable, super-efficient end-use technologies such as household appliances and income-generating equipment – products that inspire and enable demand for off-grid energy, products that off-grid energy markets need in order to reach scale – needs similar support. If unaddressed, this lack of support will undermine energy access.

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**Solar Home System (SHS) Purchase Price Based on Appliance Type**

- **Lights**
- **Battery**
- **PV**
- **Balance of System**
- **Appliances**

**SHS with Standard Appliances (2009)**

**SHS with Standard Appliances (2014)**

**SHS with Super-Efficient Appliances (2014)**

**SHS with Super-Efficient Appliances (2017)**

* Systems provide energy for 4 lights, a 19" color TV, a radio, and mobile phone charging
* Appliance use assumption: lights = 4hrs/day, TV = 3hrs/day, radio = 6hrs/day, mobile phone = 1 charge per day

markets, and impede the delivery of higher levels of modern energy services (beyond basic lighting) to empower lives and power livelihoods. Simply put, the global community cannot cost-effectively achieve universal access to enhanced modern energy services within the ambitious SDG7 timeline without a greatly increased focus on the development of complementary markets for the high-performing end-use products that will enable those services.

THE LED SUCCESS STORY. Super-efficient technologies are already transforming energy access. Advances in LED efficacy, coupled with falling prices, have sparked the development of a rapidly growing global commercial market for off-grid solar lighting and phone charging products. This market has transformed the lives of millions of off-grid families and businesses – and the economics of this market are such that it simply would not exist without super-efficient LEDs.

BEYOND LIGHTING. Super-efficient, appropriately designed, and affordable appliances and equipment can, and will, have the same impact on delivering enhanced energy services to off-grid populations by bringing down the overall cost of off-grid energy. A recent study supported by Global LEAP5 shows that with super-efficient appliances, a solar home system of only 25 watts-peak ($W_{p}$) can power a 19” color television, four LED lights, a radio, and a mobile phone charger. This is far greater energy service than is available to most off-grid households – and because of the savings from the reduction in size of the solar panel and battery required, the total system cost (including appliances) is 50% cheaper than when conventional appliances are used—despite the higher cost of the super-efficient appliances themselves. This dramatically expands the market of off-grid consumers who can afford these systems, bringing life-transforming energy services within their reach. Importantly, similar potential for cost and energy savings exists in mini-grid and even grid extension contexts, as well as for non-household applications.

MAKING EVERY WATT COUNT. Energy service – not energy supply – accomplishes the socio-economic goals of energy access. Super-efficient end-use technologies maximize the utility and affordability of a limited energy supply in off-grid contexts. Efforts to improve energy access that focus only on supply-side interventions overlook this game-changing opportunity to leverage super-efficient end-use technologies to reduce the cost of providing energy services. Achieving the ambitious SDG7 target will require a paradigm shift towards a comprehensive approach to energy access that prioritizes end-use efficiency – alongside expansion of energy supply, where efforts are well underway – to make the most of every watt supplied.

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4. SDG 7: By 2030 ensure universal access to affordable, reliable, and modern energy services
The E4A Coalition

THE EFFICIENCY FOR ACCESS (E4A) COALITION. E4A is a new collaborative effort from the Clean Energy Ministerial’s Global Lighting and Energy Access Partnership (Global LEAP) initiative and Sustainable Energy for All (SE4All). E4A will provide a cross-cutting platform within the SE4All framework to unite and amplify current efforts, mobilize the resources needed to catalyze emerging markets for super-efficient end-use technologies, and strengthen linkages with supply-side energy access efforts. In doing so, E4A aims to harness the untapped potential of super-efficient end-use technologies to expand the human and economic benefits of energy access.

E4A Mission & Objectives

ENHANCED ACCESS BY 2030 THROUGH END-USE EFFICIENCY. Enhanced access by 2030 through end-use efficiency. E4A will accelerate progress towards achieving SDG7 by mobilizing resources to support the development and deployment of super-efficient end-use technologies to enable universal access to enhanced energy services beyond lighting by 2030. This includes household appliances, income-generating equipment (e.g., irrigation pumps, grain mills, machinery), as well as applications relevant to rural schools, hospitals and other public services.

PROMOTING A COMPREHENSIVE APPROACH TO ENERGY ACCESS. E4A will promote a comprehensive approach to energy access by integrating end-use efficiency within broader electrification efforts to strengthen supply-side efforts and support the delivery of higher levels of life-transforming energy services at least cost.

CATALYZING NASCENT OFF-GRID MARKETS. E4A will catalyze a thriving, global commercial market for high-quality, affordable, super-efficient appliances, equipment, and other end-use technologies, in accordance with the Global LEAP Guiding Principles.7

LEVERAGING PARTNERSHIPS TO DRIVE ACTION. E4A will mobilize partnerships with public- and private-sector stakeholders, coordinating efforts across key action areas to strengthen the overall ecosystem for rapid adoption of super-efficient end-use technologies to advance energy access.

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6. Access to Tier 2 or greater electricity services, as defined in the Multi-Tier Framework developed for SE4ALL by the World Bank: http://www.worldbank.org/en/topic/energy/publication/energy-access-redefined

7. The Global LEAP Guiding Principles encourage self-sustaining commercial markets for energy access solutions and are supported by Global LEAP Partners and over 140 public- and private-sector stakeholders.
E4A Year of Action 2016

E4A Year of Action Global Launch. The official global launch of E4A will take place on December 7, 2015, at the 21st annual Conference of Parties (COP21) in Paris, France. The launch will kick off a Year of Action between COP21 and COP22 to increase global awareness of the efficiency-access nexus and mobilize commitments from public and private sector partners to help unlock the massive potential of energy efficiency as an energy access resource.

A Framework for Action. This document lays out E4A’s vision and outlines key priorities to advance the Coalition’s core objectives. The framework provides a starting point, leveraging the high-visibility platform offered by COP21 and laying the groundwork for a detailed E4A Year of Action Implementation Roadmap that will be developed by core Global LEAP partners in consultation with relevant stakeholders at a workshop convened in early 2016. The Roadmap will outline actions planned by core partners and guide efforts to mobilize support for increased investment across key action areas over the coming year. The Year of Action will culminate in COP22 in Morocco, whereby Coalition partners will report progress since COP21, announce new commitments, and unveil a comprehensive post-2016 strategy.

E4A Action Areas

Despite the tremendous potential, there are several key barriers that constrain our ability to truly leverage the potency of energy efficiency as an energy access resource as outlined above. These include lack of awareness of the opportunity among key energy access actors, limited market data that impedes private-sector engagement, lack of finance to support development and deployment of these technologies, high costs due to limited scale, market spoilage from poor quality products, lack of market infrastructure, and prohibitive policy and regulatory environments. Targeted cross-cutting action is needed to rapidly develop the market and strengthen the overall ecosystem to enable uptake of super-efficient off-grid technologies. As a starting point, the E4A Year of Action framework recommends six action areas, laid out below, to focus E4A partner efforts and mobilize commitments:

1. Market Research and Intelligence: What is the state of play in the off-grid appliance and equipment market? What is its trajectory? How can actors across the value chain best engage in the market? Where are the biggest near-, mid-, and long-term gains to be made?

2. Technology Development and Innovation: What are the market’s needs in terms of innovation and new product development? What can be done to inspire such innovation?

3. Policy Frameworks and Enabling Environments: How can governments, multi-laterals, and others best support enabling environments for thriving commercial markets?

4. Finance: What financing and investment vehicles are needed to scale-up
businesses developing and deploying super-efficient and high-quality energy access products and services?

5. **INDUSTRY ENGAGEMENT AND SUPPORT:** What does industry need to succeed? How can public-sector counterparts effectively support industry?

6. **CONSUMER AWARENESS:** What can be done to educate consumers and accelerate demand for highly efficient off-grid products?

**Foundational Efforts to Date**

Recent programmatic investments by Global LEAP and its partners are laying the foundation for high-impact and sustained action on super-efficient end-use technologies globally. This includes support for market research and techno-economic analyses to identify key opportunities and barriers, awards and procurement incentive programs to drive innovation and pull high-performing products into the market, efforts to overcome market fragmentation and information asymmetries in this nascent sector through product testing, data sharing, industry matchmaking and related programs, as well as broader knowledge-sharing and partnership building efforts. A summary of key milestones is provided below. The E4A Coalition aims to build on this foundational work by mobilizing additional resources and support through a broader constellation of stakeholders to enable transformational impact at a larger scale.

- **April 2012:** Global LEAP is launched at the third Clean Energy Ministerial (CEM3) with the support of ten governments and development partners joined by over 100 private sector and civil society organizations.
- **May 2014:** First-ever Global LEAP Awards are announced for the world’s highest-performing off-grid LED room lighting appliances and televisions.
- **September 2014 and January 2015:** Joint statements from U.S. President Obama and India’s Prime Minister Modi articulate high-level support for super-efficient technologies as part of bilateral energy access efforts.
- **April 2015:** Global LEAP releases groundbreaking research showing that 50% cost reductions are possible when solar home systems are packaged with superefficient appliances.
- **May, August, and October 2015:** Global LEAP-hosted events in New York, New Delhi, and Cape Town highlight the opportunity to accelerate energy access with super-efficient technologies.
- **May 2015:** Global LEAP and its partners launch a first-of-its-kind multi-million dollar effort to incentivize mass deployment of super-efficient Global LEAP Award-winning televisions and fans in key solar home system markets using an innovative results based financing mechanism.
Mobilizing Action

**MOBILIZING PARTNERS AND COMMITMENTS.** During the Year of Action, E4A will seek commitments from new public and private-sector partners to advance the Coalition’s overarching mission and goals. Partners from government, multilateral organizations, the private sector, non-governmental organizations (NGOs), research institutions, universities, philanthropic organizations, and others are welcome to join the Coalition.

Commitments by partners might include the following:

- Raise global awareness of the role of demand-side energy efficiency in advancing energy access goals.
- Integrate end-use efficiency concepts into current and future energy access programs to maximize impact.
- Fund research to strengthen the evidence base and increase understanding of the opportunities, challenges and solutions in the sector.
- Fund a full-time Coalition Secretariat within Global LEAP to coordinate global efforts, implement core programming, and monitor progress in alignment with SE4All processes.
- Advance the use of innovative finance mechanisms to support companies that produce, distribute, and market high-performing off-grid end-use products, as well as support consumer financing schemes to increase affordability.
- Support the development, adoption and implementation of enabling policy and regulatory environments that allow
markets for off-grid energy technologies and complementary super-efficient end-use devices to thrive.

- Support the development of critical market infrastructure for off-grid appliances and equipment, including effective sales, distribution, and supply chains.
- Commit to design, manufacture, or market high-performing, high-quality, and affordable end-use products for the off-grid market.
- Support development and adoption of quality assurance frameworks and standards for off-grid appliances and products.
- Support programs to build local human capacities through training and education.
- Support efforts to create awareness among consumers to help them make informed choices.
- Support market facilitation activities, such as supporting off-grid industry associations and promotion of business linkages between off-grid energy service providers and appliance manufacturers.
- Governments announce this as a political priority and make commitments to support off-grid markets in their countries.
- Share experiences, expertise, best practices, tools and resources.
- Indicate support for E4A efforts through advocacy, public statements, and other supporting actions.

**E4A Year of Action Timeline**

**2015**

- OCT: E4A announced at White House Forum on Catalyzing Markets for Off-Grid Clean Energy Access

**2016**

- JAN: Workshop for core partners and relevant stakeholders
- FEB: Workshop will develop detailed Year of Action Implementation roadmap
- JUN: Kick-off global partnership drive and mobilization of commitments
- DEC: Mid-point progress report and announcement of new partners and commitments at the 7th Clean Energy Ministerial (CEM7)
- JUN: High-level energy access event and technology showcase on the margins of CEM7

**DEC**

- End of year progress report at COP22
- Announce new commitments
- Targeting a launch of fully capitalized E4A Secretariat and post-2016 strategy
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