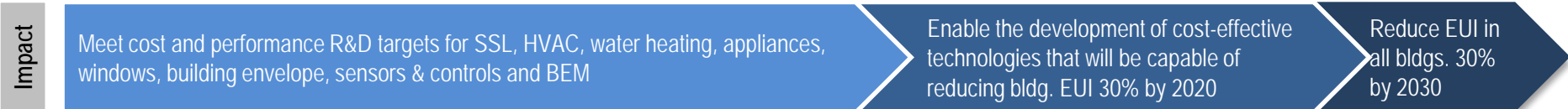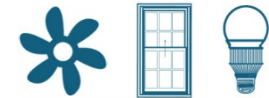**Emerging Technologies Program supports R&D of technologies and systems that are capable of substantially reducing building primary energy use, and accelerates their introduction into the marketplace.**

Dec. 2015

External Influences: DOE budget, Spin-off products, Legislation, Market incentives, Private sector R&D, Energy prices, Legislation / Regulation

Sub-Programs	Objectives	Activities / Partners	Key Outputs	Short Term Outcome	Mid-Term Outcome	Long Term Outcome
Solid State Lighting	Support R&D of high efficiency next-generation technologies & components	Competitive & shared R&D funding focused on energy efficiency performance by researchers in lab & test facilities	Technical pathway & research reports	Private sector has access to validated solutions to develop or improve technologies & reduce cost	Private sector engages in targeted R&D & develops advanced, more cost-effective tech.	*Advanced energy efficient technologies* are regularly innovated, widely available in the market, & have similar or better life-cycle costs relative to conventional technologies.
			Prototypes that fill technical gaps			
HVAC, Water Heating & Appliances	Improve performance & cost of near term technologies & reduce manufacturing costs	Competitive & shared funding of field testing, modeling & validation	Prototypes or packaged solutions that reduce cost	Manufacturers aware of advanced tech. & available reduced cost production solutions	Manufacturers produce highly energy efficient equipment & push in the market	
		Manufacturing R&D with emphasis on cost reduction with industry	Open-source sensor & control platforms & standardized communication protocols			
Windows & Building Envelope		Pre-commercial technology demos with industry	Manufacturing advanced, reduced cost solutions	Manufacturers & retailers understand product benefits	Retailers / building industry stock & install more energy efficient products	*Energy Efficient Buildings* are designed or upgraded with communicative, energy efficient technologies & controlled to optimize system operations & grid integration, while minimizing energy use & costs.
	Accelerate market entry & availability of technologies & processes	Development of installation & verification techniques with industry	Tech. cost & performance data & demo reports	Building industry have solutions to install & integrate products in buildings		
Sensors & Controls		Outreach to stakeholders with cost & performance data analysis	Installation & verification techniques		Building industry regularly use energy modeling tools to design or retrofit energy efficient buildings	
			Industry competitions, workshops & recognition	Building industry or engine developers have energy modeling tools to improve building or systems design		
Building Energy Modeling (BEM)	Improve energy modeling tools & capabilities & testing techniques	Competitive & shared funding to develop, improve & test modeling tools	Tech. & market assessments			
			Comprehensive, accurate, easy to use modeling tools & approaches	Governments, standards & industry orgs.& EE programs have approaches & test protocols to differentiate product performance	Government, standards & industry orgs. & EE programs use modeling as basis for market incentives, standards & energy codes	
		Development of test & simulation protocols by researchers to support industry standards	Standardized simulation & test protocols			

Researchers are national labs, universities & research institutions

Impact: Meet cost and performance R&D targets for SSL, HVAC, water heating, appliances, windows, building envelope, sensors & controls and BEM → Enable the development of cost-effective technologies that will be capable of reducing bldg. EUI 30% by 2020 → Reduce EUI in all bldgs. 30% by 2030

Emerging Technologies Program Logic Model

Updated Dec. 2015

OBJECTIVE	ACTIVITIES	KEY OUTPUT	SHORT-TERM OUTCOME	MID-TERM OUTCOME	LONG-TERM OUTCOME
Develop next-gen tech	Next-gen tech & component R&D	Next-gen prototypes	Performance goals met	Private sector R&D	
Improve near-term tech	Cost reduction R&D	Reduced cost prototypes	Validated products	Adopted products	Advanced tech and tools in market on a national scale
	Demonstrate pre-commercial technologies	Validated demo results			
Provide modeling tools	Update and validate key tools	Widely used modeling tools	Adopted tools	Wide use	

EXTERNAL INFLUENCES

- DOE Budget
- Spin-off Products
- Market Incentives
- Legislation / Regulation
- Energy Prices
- Private R&D