DOE GPRA08 Program Summary

DOE Program	Sector	Program Summary				
		Baseline Changes from AEO 2006		Program Case		
		Technology Characteristics	Market Assumptions	Technology Characteristics	Market Assumptions	Offline Analysis
Electricity Delivery and Energy Reliability						
High Temperature Superconductivity						Reliability, security estimated by poll of industry experts
▪ Large Motors	Industry		Energy savings from offline analysis		Energy savings from offline analysis	Energy savings estimated offline
▪ Transformers	Electricity		Reduced T&D losses from offline analysis		Reduced T&D losses from offline analysis	Energy savings estimated offline
▪ Generators	Electricity		Reduced T&D losses from offline analysis		Reduced T&D losses from offline analysis	Energy savings estimated offline
▪ Underground Cables	Electricity		Reduced T&D losses from offline analysis		Reduced T&D losses from offline analysis	Energy savings estimated offline
Visualization and Controls	Electricity					Reliability, security estimated by poll of industry experts
Energy Storage and Power Electronics	Electricity					Reliability, security estimated by poll of industry experts
Distributed Systems Integration	Electricity	Added load shifting technology; 2025 commercialization year		Load shifting technology: 2017 commercialization year; lower capital cost based on offline market penetration projection		Market penetration estimated offline; Reliability, security estimated by poll of industry experts
Energy Efficiency and Renewable Energy						
Vehicle Technologies	Transportation					
▪ Lightweight Materials		Not included		Program goals in advanced conventional vehicles		
▪ Hybrids (HEVs)		Added plug-in HEV; Reduced out-year capital costs in MARKAL	Made consumer acceptance/bias factor for HEVs more neutral in NEMS	Program goals for gasoline, diesel, and plug-in HEVs	Made consumer acceptance/bias factor more neutral in NEMS	

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		Technology Characteristics	Market Assumptions	Technology Characteristics	Market Assumptions	Offline Analysis
▪ Advanced Diesels		No change		Program goals	Made consumer acceptance/bias factor more neutral in NEMS	
▪ Heavy Trucks		Removal of some EERE technologies				Market penetration estimated offline using TRUCK model
Wind Technologies	Electricity					
▪ Land Based		Higher capacity factors; lower capital costs than AEO		Program goals		
▪ Offshore		Added offshore technology	Added offshore technology	Program goals		
Solar Energy Technologies	Electricity	Higher PV costs thru 2015; Slightly lower PV costs after 2020 than AEO	PV system sizes increased; DG adoption rates modified; added CA subsidy	Program goals for residential and commercial distributed PV, central PV, and CSP	Maximum growth rate for distributed PV	
Building Technologies	Residential & Commercial					
▪ Building America		Removal of highest level efficiency shell packages for new homes		Program goals adapted to shell package assumptions		
▪ Building Codes		No change				Savings estimated offline to determine average minimum efficiency level
▪ Various window and insulation technologies		Removal of highest level efficiency shell packages for new homes		Program goals adapted to shell package assumptions for new homes in NEMS; all residential and commercial for MARKAL	For NEMS, offline analysis implemented through adjusting shell indices; For MARKAL, offline analysis of market penetration was used as upper bound	For NEMS, offline analysis using estimated penetration rates for existing homes and all commercial bldgs.
▪ Advanced AC and heat pumps		No change		Program goals		

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▪ Solid State Lighting		Greater improvement in cost and efficacy than AEO		Program goals		
▪ Energy Star		No change			Program goals for deployment	
Hydrogen	Hydrogen	None		Program goals for fuel cell vehicles , production technologies, and delivery technologies		
Biomass	Refinery					
▪ Corn Ethanol		5 year delay of program goal & lower cost than AEO		Program goals	Increased E85 use in vehicles allowed in NEMS	
▪ Cellulosic Ethanol		15 year delay of program goal & lower cost than AEO	Commercialization delayed until 2030; Maximum growth rate for Cellulosic Ethanol Production Capacity;	Program goals		
Industrial Technologies (multiple programs and technologies)	Industry	No change				Energy savings estimated offline assuming n-year delay in market adoption
Weatherization and Intergovernmental Program (WIP)						
▪ Weatherization	Residential	No change				Energy savings estimated offline based on historical savings and budgets
▪ Tribal	Electricity	No change			Goal for Tribal renewable capacity used for additional builds	
FEMP	Commercial					Energy savings estimated offline based on historical savings and budgets

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Fossil Energy						
Advanced Power Systems	Electricity	Poll of industry experts		Program goals for coal IGCC		
Innovations for Existing Plants	Electricity	No change		Program goals for pollution control equipment		
Carbon Sequestration	Electricity	Poll of industry experts		Program goals		
Advanced Combined Cycle	Electricity	Poll of industry experts		Program goals		
Fuel Cells						
▪ Utility	Electricity	No change		Program goals		
▪ Buildings and CHP	Residential/ Commercial	No change		Program goals		
Nuclear Energy						
All Programs	Electricity	No Change		Program Goals	Maximum growth rate for capacity additions	