

Acronyms

\$/km	dollars per kilometer	ASCPMM	advanced sensors, controls, platforms and modeling for manufacturing
\$/kWh	dollars per kilowatt-hour	ASAI	average service availability index
\$/MJ	dollars per megajoule	ASTA	Advanced Superconducting Test Accelerator
\$/MMBtu	dollars per million British thermal units	ASTM	American Society for Testing and Materials
3D	3-dimensional	ATF	Accelerator Test Facility
AC	alternating current	ATLAS	Argonne Tandem Linac Accelerator System
ACCEL	Accelerating Competitiveness through Computational Excellence Program	AUSC	advanced ultra-super critical
ACTT	Advanced Computing Tech Team	AV	automated vehicle
AM	additive manufacturing	AWAF	Argonne Wakefield Accelerator Facility
AEO	Annual Energy Outlook (of the EIA)	BAU	business-as-usual
AEP	annual energy production	BECCS	bioenergy with carbon capture and storage
AER	all-electric range	BELLA	Berkeley Lab Laser Accelerator Center
AERI	atmospheric emitted radiance interferometers	BES	U.S. DOE Office of Basic Energy Sciences
AHT	absorption heat transformer	BESAC	Basic Energy Sciences Advisory Committee
Al	aluminum	BESC	BioEnergy Science Center
ALCC	ASCR Leadership Computing Challenge	BGCCS	biomass gasification with carbon capture and sequestration
ALCF	Argonne Leadership Computing Facility	BIPV	building integrated photovoltaics
ALD	atomic layer deposition	BLIP	Brookhaven Linac Isotope Producer
ALS	Advanced Light Source	BNL	Brookhaven National Laboratory
AMI	advanced metering technology	BOEM	Bureau of Ocean Energy Management
AMP	Advanced Manufacturing Partnership	BOP	blowout preventer
ANL	Argonne National Laboratory	BP	British Petroleum
API	American Petroleum Institute	BRCs	Bioenergy Research Centers
APS	Advanced Photon Source	BTO	U.S. Department of Energy Building Technologies Office
APU	auxiliary power unit	BTRIC	Buildings Technology Research and Integration Center
ARM	Atmospheric Radiation Measurement Climate Research Facility	BTS	Billion-Ton Study
ARPA-E	Advanced Research Projects Agency-Energy	Btu	British thermal unit
ARRA	American Reinvestment and Recovery Act		
ASCAC	Advanced Scientific Computing Advisory Committee		



CAES	compressed air energy storage	CO₂-eq	CO ₂ -equivalent global warming potential
CAFÉ	corporate average fuel economy	COE	cost of energy
CAIDI	customer average interruption duration index	COP	crude oil price
CASL	Consortium for the Advanced Simulation of Light Water Reactors	COPV	composite overwrapped pressure vessel
CAVs	connected and automated vehicles	CORAL	Collaboration of Oak Ridge, Argonne, and Livermore
CBO	Congressional Budget Office	CRADA	Collaborative Research and Development Agreement
CBTL	coal and biomass to liquids	CRF	Combustion Research Facility
CBTLE	coal and biomass to liquids and electricity	CSD	compression, storage and dispensing
CBTLE-CCS	coal and biomass to liquids and electricity with carbon capture and sequestration	CSP	concentrating solar thermal power
CC	combined cycle	CSPAD	Cornell-SLAC hybrid Pixel Array Detector
CCE	cost of conserved energy	CT	combustion turbine
CCGT	combined cycle gas turbine	CTL	coal to liquids
CCN	cloud condensation nuclei	CVD	chemical vapor deposition
CCS	carbon capture and storage	CVR	conservation voltage reduction
CCWG	Climate Change Working Group	CXI	Coherent X-ray Imaging
CDF	core damage frequency	D&D	demonstration and deployment
CEBAF	Continuous Electron Beam Accelerator Facility	DARPA	Defense Advanced Research Agency
CERN	European Organization for Nuclear Research	DC	direct current
CESAR	Center for Exascale Simulation of Advanced Reactors	DCV	demand-controlled ventilation
CFD	computational fluid dynamics	DEC	direct energy conversion
CFL	compact florescent light	DG	distributed generation
CFN	Center for Functional Nanomaterials	DHS	U.S. Department of Homeland Security
CFRP	carbon fiber reinforced polymer	DIII-D	DIII-D Tokamak
CH₂	compressed hydrogen storage	DLP	digital light processing
CH₄	methane	DMDII	Digital Manufacturing and Design Innovation Institute
CHHP	combined heat, hydrogen and power	DME	dimethyl ether
CHP	combined heat and power	DMLS	direct metal laser sintering
CI	compression ignition	DMS	distribution management systems
CIGS	Copper-Indium-Gallium-Selenide	DMT	dry metric ton/tonne
CINT	Center for Integrated Nanotechnologies	DMZs	demilitarized zones
CLIC	Compact Linear Collider	DNA	deoxyribonucleic acid
CMI	Critical Materials Institute	DOE	U.S. Department of Energy
CNM	Center for Nanophase Materials Sciences	DOE-EERE	U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy
CO	carbon monoxide	DOE-FE	U.S. Department of Energy's Office of Fossil Energy
CO₂	carbon dioxide	DOE-IE	U.S. Department of Energy's Office of Indian Energy Policy and Programs
CO₂-EOR	CO ₂ Enhanced Oil Recovery		

DOE-NE	U.S. Department of Energy's Office of Nuclear Energy	FACET	Facility for Advanced Accelerator Experimental Tests
DOE-OE	U.S. Department of Energy's Office of Electricity Delivery and Energy Reliability	FACTS	flexible alternating current transmission systems
DOE-SC	U.S. Department of Energy's Office of Science	FASTMath	Frameworks, Algorithms, and Scalable Technologies for Mathematics
DR	demand response	FC	fuel cell
DSM	demand-side management	FCEV	fuel cell electric vehicle
E10	a blend of 10% ethanol and 90% gasoline by volume	FCL	fault current limiter
E85	a blend of 85% ethanol and 15% gasoline by volume	FCV	fuel cell vehicle
EBM	electron beam melting	FDM	fused deposition modeling
EDT	electric drive technologies	FERC	Federal Energy Regulatory Commission
EERE	U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy	FLISR	fault location isolation and service restoration
EFRC	Energy Frontier Research Centers	flops	floating point operations per second
EGS	enhanced geothermal systems	FNAL	Fermi National Accelerator Laboratory
EI	energy intensity	FORGE	Frontier Observatory for Research in Geothermal Energy
EIA	U.S. Energy Information Agency	FRP	fiber-reinforced polymer
ELM	edge-localized mode	F-T	Fischer-Tropsch
EMF	electromagnetic fields	FY	fiscal year
EMIS	electromagnetic isotope separator	g/kWh	grams per kilowatt-hour
EMP	electromagnetic pulse	gal/MWh	gallons per megawatt-hour
EMS	energy management system	GaN	gallium nitride
EMSL	Environmental Molecular Sciences Laboratory	Gbps	gigabits per second
EOR	enhanced oil recovery	GCAM	Global Change Assessment Model
EPA	U.S. Environmental Protection Agency	GDP	gross domestic product
EPRI	Electric Power Research Institute	GE	General Electric
ERCOT	Electric Reliability Council of Texas	GeV	gigaelectron volt
EROI	energy return on investment	GFR	gas-cooled fast reactor
ESBWR	Economic Simplified Boiling Water Reactor	gge	gallon of gasoline equivalent
ESIF	Energy Systems Integration Facility	GHG	greenhouse gas
ESM	Earth System Model	GLBRC	Great Lakes Bioenergy Research Center
ESNet	Energy Sciences Network	GMD	geomagnetic disturbance
EUE	expected unserved energy	GPS	global positioning system
eV	electron volt	GSA	U.S. General Services Administration
EV	electric vehicle	GT	gas turbine
EVSE	electric vehicle supply equipment	Gt	gigaton
EWR	enhanced water recovery	GtC	gigaton of carbon
ExaCT	Center for Exascale Simulation of Combustion in Turbulence	GtCO₂	gigaton of carbon dioxide
ExMatEx	Co-design Center for Materials in Extreme Environments	GW	gigawatt
		GWh	gigawatt-hour



GWP	global warming potential	ISO	independent system operator
HC	hydrocarbon	ISO	International Organization for Standardization
HCCI	homogeneous charge compression ignition	IT	information technology
HDV	heavy-duty vehicles	ITER	International Thermonuclear Experimental Reactor
He-3	helium-3	JBEI	Joint Bioenergy Institute
HES	hydrogen energy storage	JCAP	Joint Center for Artificial Photosynthesis
HEV	hybrid electric vehicles	JCESR	Joint Center for Energy Storage Research
HFC	hydrofluorocarbon	JGI	Joint Genome Institute
HFIR	High Flux Isotope Reactor	kBtu	thousand British thermal units
HHV	higher heating value	kBtu/hr	thousand British thermal units per hour
HILF	high-impact, low-frequency	kBtu/sq. ft.	thousand British thermal units per square foot
HPC	high-performance computing	kg	kilogram
HPCEE	High Performance Computer for Energy and the Environment	klm	kilolumen
HPCIC	HPC Innovation Center	kms	kilometers
HT	high temperature	KMWh	thousand megawatt hours
HTS	high-temperature superconductors	kV	kilovolt
HVAC	heating, ventilation, and air conditioning	kW	kilowatt
HVAC	high voltage alternating current	kWh	kilowatt-hour
HVDC	high-voltage direct current	LANL	Los Alamos National Laboratories
IACMI	Institute for Advanced Composites Manufacturing Innovation	LAP	laser-plasma accelerator
IAM	integrated assessment model	LBNL	Lawrence Berkeley National Laboratory
ICE	internal combustion engine	LCA	life-cycle assessment
ICEV	internal combustion engine vehicle	LCI	life-cycle inventory
ICT	information and communications technologies	LCIA	life-cycle impact assessment
IDPRA	Isotope Development and Production for Research and Applications subprogram	LCLS	Linac Coherent Light Source
IEA	International Energy Agency	LCLS-II	Linac Coherent Light Source-II
IEEE	Institute of Electrical and Electronics Engineers	LCOD	levelized cost of driving
IGCC	integrated gasification combined cycle	LCOE	levelized cost of electricity
IGSM	Integrated Global Systems Model	LDV	light-duty vehicles
ILC	International Linear Collider	LED	light-emitting diode
ILL	Institut Laue-Langevin	LFR	lead-cooled fast reactor
INCITE	Innovative and Novel Computational Impact on Theory and Experiment	LHC	Large Hadron Collider
INL	Idaho National Laboratory	LHV	lower heating value
IOR	improved oil recovery	Li/LMRNMC	lithium metal batteries with lithium- and manganese-rich high-energy cathode
IPCC	Intergovernmental Panel on Climate Change	LIFT	Lightweight Innovations for Tomorrow Consortium
IPF	Isotope Production Facility	Li-ion	lithium-ion
		LLNL	Lawrence Livermore National Laboratory
		lm/W	lumens per watt

LMD	laser metal deposition	NEA	Nuclear Energy Agency of the OECD
LMRNMC	lithium- and manganese-rich high-energy cathode	NERC	North American Electric Reliability Corporation
LNG	liquefied natural gas	NERSC	National Energy Research Scientific Computing Center
LOLP	loss of load probability	NETL	National Energy Technology Laboratory
LOM	laminated object manufacturing	NiMH	nickel-metal hydride
LPA	laser-plasma accelerator	NIR	near-infrared
LPG	liquefied petroleum gas	NIST	National Institute of Standards and Technology
LPTs	large power transformers	NNI	National Nanotechnology Initiative
LTC	low-temperature combustion	NNSA	U.S. National Nuclear Security Administration
LUEI	land use energy intensity	NOx	nitrogen oxides
LWR	light water reactors	NPC	National Petroleum Council
M&V	measurement and verification	NRC	U.S. Nuclear Regulatory Commission
MCFC	molten carbonate fuel cell	NREL	National Renewable Energy Laboratory
MDF	Materials Demonstration Facility	NSF	National Science Foundation
MDF	Manufacturing Demonstration Facility	NSLS-II	National Synchrotron Light Source-II
MDV	medium-duty vehicles	NSRCs	Nanoscale Science Research Centers
MEA	membrane electrode loading	NSTX-U	National Spherical Torus Experiment
MEL	miscellaneous electric loads	NSUF	Nuclear Scientific User Facilities
MESP	minimum ethanol selling price	NTRC	National Transportation Research Center
Mg	magnesium	O&M	operations and maintenance
MGI	Materials Genome Initiative for Global Competitiveness	OE	U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability
MHK	marine and hydrokinetic	OECD	Organisation for Economic Cooperation and Development
MIT	Massachusetts Institute of Technology	OG&E	Oklahoma Gas & Electric
MITEI	Massachusetts Institute of Technology Energy Initiative	OLCF	Oak Ridge Leadership Computing Facility
MJM	multi-jet modeling	OLED	organic light-emitting diode
MMT	million metric ton/tonne	ORNL	Oak Ridge National Laboratory
MOF	metal organic framework	OT	operational technology
MON	motor octane number	PAFC	phosphoric acid fuel cell
MOSFET	metal-oxide-semiconductor field-effect transistor	PBIH	powder bed and inkjet head
MOSIS	Silicon Metal Oxide Semiconductor Implementation System	PC	pulverized coal
MRI	magnetic resonance imaging	PCCI	pre-mixed charge compression ignition
MT	metric ton/tonne	PCT	programmable communicating thermostat
MV	medium voltage		
MW	megawatt		
MWe	megawatt electric		
MWh	megawatt-hour		
NAS	National Academy of Sciences		
NaS	sodium sulfur		
NASA	National Aeronautics and Space Administration		
NCNR	NIST Center for Neutron Research		



PEC	photoelectrochemical	RDD&D	research, development, demonstration, and deployment
PEMFC	polymer electrolyte membrane fuel cell	REACT	Rare Earth Alternatives in Critical Technologies for Energy
PEV	plug-in electric vehicle	RESU	residential energy storage unit
pflops	petaflops	RF	radiofrequency
PFSA	perfluorosulfonic acid	RHIC	Relativistic Heavy Ion Collider
PFTE	polytetrafluoroethylene	RIAM	regional integrated assessment model
PGM	platinum group metals	RICE	reciprocating internal combustion engine
PHEV	plug-in hybrid electric vehicle	RNA	ribonucleic acid
PHS	pumped hydro storage	ROI	return on investment
PI	process intensification	RON	research octane number
PJM	Pennsylvania, New Jersey and Maryland Regional Transmission Operator	ROZ	residual oil zones
PM	particulate matter	Ru	ruthenium
PM₁₀	particulate matter less than 10 micrometers in diameter	SAIDI	system average interruption duration index
PM_{2.5}	particulate matter less than 2.5 micrometers in diameter	SAIFI	system average interruption frequency index
PMU	phasor measurement units	SANS	small angle neutron scattering
PNNL	Pacific Northwest National Laboratory	SC	U.S. DOE Office of Science
Poly/Comp	polymer composites	SCADA	supervisory control and data acquisition
POTW	publicly owned treatment work	SC-ASCR	U.S. DOE Office of Advanced Scientific Computing
PP	plaster-based 3D printing	SC-BER	U.S. DOE Biological and Environmental Research Program
PPPL	Princeton Plasma Physics Laboratory	SC-BES	U.S. DOE Office of Basic Energy Science
PQ	power quality	SCC	social cost of carbon
PUE	power use effectiveness	SC-FES	U.S. DOE Office of Fusion Energy Science
PV	photovoltaic	SC-HEP	U.S. DOE Office of High Energy Physics
PWR	pressurized water reactor	SciDAC	Scientific Discovery through Advanced Computing
QCD	quantum chromodynamics	SC-NP	U.S. DOE Office of Nuclear Physics
QER	Quadrennial Energy Review	sCO₂	supercritical carbon dioxide
QOOH	hydroperoxyalkyl	SDAV	scalable data management, analysis and visualization
QTR	Quadrennial Technology Review	SEP	Superior Energy Performance Program
quad	quadrillion British thermal units	SFR	sodium-cooled fast reactor
QUEST	Quantification of Uncertainty in Extreme Scale Computations	SGIG	Smart Grid Investment Grant Program
R&D	research and development	SHS	selective heat sintering
R2R	roll-to-roll	Si	silicon
RAP	resilience analysis process	SI	spark ignition
RC	Rankine cycle engine		
RCCI	reactivity controlled compression ignition		
RCSP	Regional Carbon Sequestration Partnerships		
RD&D	research, development, and demonstration		

Si/LMRNMC	lithium- and manganese-rich high-energy cathode with silicon alloy anodes	TWh/year	terawatt-hours per year
SiC	silicon carbide	UC	unit of capacity
SIEGate	Secure Information Exchange Gateway	UCC	ultra-conductive copper
SLA	stereolithography	UCPTE	Union for the Coordination of Production and Transmission of Electricity
SLAC	SLAC National Accelerator Laboratory	UE	unit of energy
SLS	selective laser sintering	UNF	used nuclear fuel
SMES	superconducting magnetic energy storage	UNFCCC	United Nations Framework Convention on Climate Change
SMR	small modular reactors	UOG	unconventional oil and gas
SMR	steam methane reforming	URCI	universal remote circuit interrupter
SNCR	selective non-catalytic reduction	USB	universal serial bus
SNL	Sandia National Laboratory	USDA	U.S. Department of Agriculture
SNS	Spallation Neutron Source	USGS	U.S. Geological Survey
SO₂	sulfur dioxide	UV	ultraviolet
SOC	state-of-charge	V&V	verification and validation
SOFC	solid oxide fuel cell	V2B	vehicle-to-building
SO_x	sulfur oxides	V2G	vehicle-to-grid
SPP	Strategic Partnership Projects	V2I	vehicle-to-infrastructure
SRF	superconducting radio frequency	V2V	vehicle-to-vehicle
SSDT	solid state distribution transformer	VAR	volt-ampere reactive
SSRLS	Stanford Synchrotron Radiation Light Source	VERA	Virtual Environment for Reactor Application
SST	solid-state transformer	VFD	variable frequency drive
ST	steam turbine	VOC	volatile organic carbon
STP	set top boxes (for TVs)	VOCs	volatile organic compounds
SubTER	Subsurface Technology and Engineering Research	VVO	volt/volt ampere reactive optimization
SUPER	Institute for Sustained Performance, Energy, and Resilience	W/kg	watts per kg
T&D	transmission and distribution	WACC	weighted average capital cost
TB	terabyte	WAG	water-alternating-gas
TBtus	trillion British thermal units	WBG	wide bandgap
TCEP	Texas Clean Energy Project	Wh/kg	watt-hours per kg
Tcf	trillion cubic feet	Wh/l	watt-hours per liter
TEDF	Technology and Engineering Development Facility	WHP	waste heat to power
TEG	thermoelectric generators	WHR	waste heat recovery
TI	technology innovation	WNUF	Wireless National User Facility
TJNAF	Thomas Jefferson National Accelerator Facility	ZNE	residential zero-net-energy customer
TMF	The Molecular Foundry		
TR	technology roadmapping		
TRLs	Technology Readiness Levels		
TWh	terawatt-hour		