

FACILITATION OF CLIMATE CHANGE ACTION PLAN RECOMMENDATIONS

Work Plan	Specific Recommendation	Implementation Mechanisms					
		Legislation	Regulation	Education & Outreach	Executive Order	Gov't. Incentives	Markets
Elec 2	Require additional MWh reductions via Act 129		X				
Elec 3	Require additional MWh reductions via Act 129		X				
Elec 5	Require development of and use of Carbon Capture & Sequestration (CCS)	X (HB 80)					
Elec 6	Require 5% increase in power plant efficiency	X					
Elec 7	Require SF6 reductions of between 10% to 20% through Best Mgmt. Practices	X					X
Elec 7	Require record keeping and reporting of activities and SF6 emissions/reductions	X					
Elec 9	Increase development & utilization of commercial/industrial Combined Heat & Power			X		X	
Elec 10	Support 1,050 MW of nuclear uprates						X
Elec 10	Support development of new nuclear power generation (PPL Bell Bend plant)		X	X			
Elec 11	Develop GHG performance standards for new electricity generation		X				
Elec 12	Reduce Transmission & Distribution losses	X	X	X		X	X

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RC 1	Commonwealth-owned and Commonwealth-funded construction projects must meet LEED Silver plus an Energy Star rating of 85 or above	X	X	X	X	X	
RC 1	Revise Guaranteed Energy Savings Act (GESA) & Energy Service Company (ESCO) language to incorporate Energy Star performance requirements	X			X		
RC 1	Require all GESA & ESCO projects to adopt Energy Star performance-based requirements	X	X		X		
RC 1	Existing Commonwealth-owned and leased facilities must meet Energy Star rating of 75 or above by 2020 and the equivalent of LEED-EB Silver by 2020				X		
RC 1	Require U.S. Environmental Protection Agency (EPA) Energy Star Portfolio Manager benchmarking for all commonwealth-owned and -leased facilities				X		
RC 1	Require PUC to develop and mandate that all PA utilities conform to a uniform billing structure and format to allow automated billing data entry into the Energy Star Portfolio Manager database		X				
RC 1	Commonwealth agencies should include in their decision-making processes appropriate and careful consideration of GHG emission effects from proposed actions by requiring analysis of GHG impacts in all award and approval (permits, grants, procurements, etc) decisions.				X		
RC 1	Establish a Pennsylvania Community and Local Government Climate Change Collaborative Clearinghouse to assist communities in developing climate action plans and identify and overcome barriers to progress on climate change actions.	X		X	X		
RC 2	Require EPA Energy Star Portfolio Manager benchmarking for all commonwealth-owned and -leased educational facilities by 2010	X			X		
RC 2	Establish a goal of minimum Energy Star rating of 75 for all public school buildings by 2020	X					
RC 2	Continue efforts of Pennsylvania State System of Higher Education (PASSHE) Energy Consumption Reduction and seek new energy saving initiatives to meet or exceed the 1.5 percent annual energy use intensity (EUI) reduction goal	X		X			
RC 2	Increase utilization of campus energy managers (typically funded out of energy consumption and unit cost savings achieved through the work of an energy manager)			X			X
RC 2	Implement a Green Campus Initiative for all Pennsylvania colleges, universities, private schools, and secondary schools to minimize environmental impacts and create "learning labs" for sustainability			X			

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RC 3	Tax credits for private-sector construction projects that meet a performance level equivalent to a minimum of LEED Silver plus an Energy Star rating of 85					X	
RC 3	Require energy information to be included in a "seller's disclosure" for commercial real estate transfers. Alternatively, require an Energy Star portfolio manager energy use index	X					
RC 3	Implement an Airport Efficiency Initiative via Executive Order by the Governor requesting all Federal Aviation Regulation (FAR) Part 139 airports to improve their energy efficiency by 10 percent. The individual airports (which include all facilities leased or owned by the airport) need to be given flexibility to achieve the efficiency goal. This will allow each facility to find the most cost-effective options to meet the target. Under the Executive Order, applicable airports would be encouraged to coordinate with Pennsylvania Department of Transportation's (PennDOT's) Air Services Committee to develop plans to achieve the energy efficiency goal			X			
RC 4	Incorporate green building requirements in the statewide building code (UCC) requiring all new residential construction in Pennsylvania to achieve a minimum of LEED certification	X					
RC 4	Provide tax credits for private-sector construction projects that meet a performance level equivalent to a minimum of LEED Silver plus an Energy Star rating of 85					X	
RC 4	Require energy information or an energy audit as part of "seller's disclosure" information in a residential sales transaction	X		X			
RC 4	Retool the Keystone HELP program to offer a greater degree of assistance (much lower loan rates) to homeowners implementing energy-saving measures based on a whole-house energy audit	X					
RC 4	Require that all new homes have an Energy Star rating (15 percent more energy efficient than code-compliant construction)	X					
RC 4	Implement a Pennsylvania Home Climate Champion Collaborative to provide vision, clarity, and access to human and physical resources so that 100,000 homes will achieve substantial (greater than 60 percent) energy reductions, while maintaining or improving indoor air quality, resilience to storms and power outages, adaptability, comfort, and affordability between now and 2025. Five percent of these demonstration projects should achieve the German PassivHaus energy independence goals of 90 percent energy reduction, with 10 percent met by renewable energy			X		X	X

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RC 4	Develop energy improvement mortgages or energy-efficient mortgages and promote these products in PA			X			X
RC 4	Offer the commonwealth residential sector an incentive for implementing whole-house performance, provide consumer and contractor education, create jobs, spur marketplace development, and significantly improve PA's existing housing stock while reducing energy consumption and associated GHG emissions			X		X	X
RC 5	Promote the common practice of performing commissioning and retro-commissioning processes on newly constructed, renovated, and existing buildings for the purpose of ensuring optimal performance of building systems			X		X	X
RC 6	Lighting Performance goals <ul style="list-style-type: none"> Require new construction to achieve a Lighting Power Density (LPD) of 0.9 watt/sq.ft. connected load as maximum for all workplaces Require the same for existing buildings by 2020, with a linear percentage increase in performance each year. 	X		X			
	Fixture Performance Require a 70% Lighting Output Ratio (an index of fixture effectiveness) minimum for all new construction, all building types, and all fixture replacements	X		X			
	Lamp Performance (for all new lamp purchases, for all points of sale by 2015) Require/support establishment of a standard of: <ul style="list-style-type: none"> 90 mean lumens/watt Mercury not to exceed 80 picograms per lumen-hour, 5 milligrams of mercury per lamp CRI (color rendering index) minimum of 85 92% luminance maintenance (lamp depreciation) over rated life 	X		X			
	Controls and System Performance (new and existing construction by 2015) <ul style="list-style-type: none"> Require/encourage individual lighting controls for 90% of occupants Require/encourage occupancy sensors in single-occupancy rooms or short time-of-use rooms Require/encourage commissioning of installed lighting systems, including controls 	X		X			

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	Daylight (all non-residential buildings) <ul style="list-style-type: none"> Establish a standard requiring 25 foot candles (fc) of daylight to 90% of occupied spaces Establish a standard requiring seated daylight access for 90% of occupants Establish a standard requiring glazing with visible light transmission of over 50%, a solar heat gain coefficient (SHGC) of under 50% or a 1.5 ratio of visible light divided by SHGC in summer (whenever replacements are made) Establish a standard requiring window blinds/shades to ensure natural daylighting and view without glare and overheating (all buildings 2015) Establish a standard requiring daylight-responsive controls for all fixtures within 15 feet of a window (all buildings 2012) 	X		X			
	Exit Lighting (for all new construction and existing buildings by 2012) Establish a standard requiring a maximum of 5 watts per fixture or "face"	X					
	Site Lighting (for all new construction and existing locations by 2012) <ul style="list-style-type: none"> Establish a standard requiring a maximum LPD of 0.15 watt/sq.ft. max Establish a standard requiring zero night sky pollution (0 light emittance above a 90° cutoff) Require zone-occupancy controls in large parking lots Require Light-emitting diode (LED) traffic lights 	X		X			
	No- or Low-Cost Education Campaign <ul style="list-style-type: none"> Wash reflectors, lenses to maximize light output Install occupancy and daylight sensors Promote the Turn It Off campaign Delamp where light levels are not needed Raise or tilt the blinds and use daylight 			X			
RC 7	Re-Roof PA – light-colored, insulated roofs	X				X ¹	
RC 7	Re-Roof PA – green roofs	X				X ¹	
RC 7	Re-Roof PA – solar PV roof	X				X ^{1,2,3}	

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RC 8	PA Buys Energy Efficient (EE) Appliances	X ⁴			X ⁵	X ^{2,6,7}	
RC 9	Geothermal Heating & Cooling	X ⁸				X ⁹	
RC 10	DSM – Natural Gas					X ^{2,7}	
RC 11	Conservation and Fuel Switching for Heating Oil		X ¹⁰			X ^{2,7}	
RC 13	DSM – Water	X ¹¹	X ¹²	X			
RC 14	Renew PA Buildings – PA Values Embodied Energy in Building Materials, Including Historic Structures				X ¹³	X ^{1,2,14}	
RC 15	Sustainability Education Programs			X			
RC 16	Adaptive Building Reuse				X ¹³	X ¹⁴	
	¹ DCED's High Performance Building (HBP) Program						
	² DCED's Alternative & Clean Energy (ACE) Program						
	³ DEP's Sunshine Solar Program/Solar Energy Program (SEP)						
	⁴ HB 15 (Special Energy Session of 2007-08); NEEP – regional EE legislation; Energy Efficient Appliance Standards bill (draft currently being prepared)						
	⁵ Executive Order 2005-07 (Fuel & Energy Conservation Plan); since rescinded; state agencies still operate under the plans						
	⁶ ACT 129 provides Electric Distribution Companies w/ \$ for EE appliances						
	⁷ PA's Home Heating Equipment Rebate Program (HHERP) via ARRA funding						
	⁸ legislation in the form of tax credits for capitol costs or a similar incentive						
	⁹ CFA's Renewable Energy Program (REP) – low interest loans						
	¹⁰ Low Carbon Fuel Standard (LCFS) program currently under development						
	¹¹ Product performance standards could be introduced						
	¹² Elimination of water regs. & plumbing code barriers that hinder stormwater reuse						
	¹³ Reissue of Executive Order 1980-3 (Life Cycle Costing) {or equivalent legislation}						
	¹⁴ Financial incentives for urban revitalization w/ historic building reuse						

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I-1	Coal Mine Methane Recovery						X
I-2	Industrial Natural Gas & Electricity BMPs			X			
I-3	Reduce Lost & Unaccounted For Natural Gas	X		X			
	BMPs = Best Management Practices						
W-1	Landfill Methane Displacement of Fossil Fuels			X			
W-2	Statewide Recycling Initiative	X	X	X			X
W-4	Improved Efficiency at Wastewater Treatment Plants						
W-5	Waste-to-Energy Digesters					X	
W-6	Waste-to-Energy Municipal Solid Waste			X		X	

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LUT 1	PA Clean Vehicles Program & Federal Vehicle GHG Emissions/CAFE Standards		X ^{1,2}				
LUT 2	Biofuel Development and In-State Production Incentive Act	X ³		X		X ^{4,5}	X
LUT 3	Low-Rolling Resistance (LRR) Tires		X ⁶	X			
LUT 4	Diesel Anti-Idling Program	X ⁷				X ⁸	
LUT 5	Eco-Driving – Pay As You Drive (PAYD) Insurance	X				X ⁹	
LUT 5	Eco-Driving – Feebates – higher efficiency vehicle purchases	X ¹⁰					
LUT 5	Eco-Driving – Driver Training			X			
LUT 5	Eco-Driving – Tire Inflation			X			
LUT 5	Eco-Driving – Speed Reduction	X					
LUT 6	Utilizing Existing Public Transportation Systems – Capital Investments	X (\$)		X			
LUT 7	Increasing Participation in Efficient Passenger Transit	X ¹¹		X		X	
LUT 8	Cutting Emissions from Freight Transportation			X		X ⁵	
LUT 9	Increasing Federal Support for Efficient Public Transit & Freight Transport in PA			X		X	
LUT 10	Enhanced Support for Existing Smart Growth/Transportation & Land Use Policies	X ¹²		X		X ¹³	
LUT 11	Transit-Oriented Design, Smart Growth Communities & Land Use Solutions	X ¹²		X		X	
	¹ PA Clean Vehicles Program						
	² Pending EPA regulations re: vehicle GHG emissions/CAFÉ standards						
	³ Federal Renewable Fuels Standard (RFS)						
	⁴ PA Biofuel Development and In-State Production Incentive Act						
	⁵ DCED's Alternative & Clean Energy (ACE) Program						
	⁶ DEP has the authority thru its consumer protection reg. auth. to propose LRR regs						
	⁷ Diesel-Powered Motor Vehicle Idling Act (Act 124 of 2008)						
	⁸ DEP Small Business Advantage Grant Program to purchase/install auxiliary power units for idling reduction						
	⁹ Dept. of Insurance is pursuing grant opportunities from FHA to promote driving recording devices for use in a PAYD program						
	¹⁰ PA DOT would need to alter the existing fee structure or create a new fee						
	¹¹ creation of inter-city tolls and sales tax exemptions						
	¹² PA legislative changes to the Municipalities Planning Code (MPC)						
	¹³ DCED's Land Use Planning Technical Assistance Program (LUPTAP)						

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Ag 1	Foodshed development strategy			X		X	X
Ag 2	Next generation biofuels	X (fed RFS)		X		X*	X
Ag 3	Management-intensive grazing			X		X (REAP)***	
Ag 4	Manure digester implementation support (dairy/swine)			X		X**	
Ag 5	Regenerative farming practices			X		X (REAP)***	
Ag 5	Soil sequestration from continuous no-till agronomic systems			X		X (REAP)***	
	* includes PA Biofuel Development and In-State Production Incentive Act						
	** includes REAP, Energy Harvest Grant, PA Grows program, PA Alternative Energy Investment Act						
	*** includes carbon credits/offsets						
	RFS = Renewable Fuels Standard						
	REAP = Resource Enhancement And Protection Program						

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F 1	Forest Protection Initiative – Easement Purchase	X ¹				X ²	
F 2	Woodnet			X		X ³	X
F 3	Forestland Protection and Avoided Conversion – Land Acquisition	X ¹				X ²	
F 4	Reforestation, Afforestation & Regeneration	X ¹		X			
F 5	Improved Forest Management	X ¹		X			X
F 6	Durable Wood Products	X ¹		X		X ^{3,4}	X
F 7	Urban Forestry	X ^{1,5}		X		X ⁶	
F 8	Wood-to-Electricity	X ⁷				X ⁸	X
F 9	Biomass Thermal Energy Initiatives – CHP	X ¹		X		X ⁸	
F 9	Biomass Thermal Energy Initiatives – Fuels for Schools	X ¹		X		X ^{8,9}	
	¹ Conservation & Natural Resources Act						
	² Growing Greener II (expires 12/2010)						
	³ Alternative & Clean Energy (ACE) and High Performance Buildings (HBP) via CFA						
	⁴ periodic Timber Product Output Study (currently non-existent)						
	⁵ PA Municipalities Planning Code (MPC)						
	⁶ DCED's Land Use Planning Technical Assistance Program (LUPTAP)						
	⁷ Alternative Energy Portfolio Standards (AEPS) Act						
	⁸ PEDA and DCED's ACE programs						
	⁹ HB 1040 – transfer \$15M from CFA to Dept of Ag to establish grant program						