Panel 12: Smart and Grid-Interactive Buildings

PANEL LEADERS: Therese Peffer, CA Instititute for Energy & Environment and Marco Pritoni, Lawrence Berkeley National Laboratory

DATE	SESSION	TITLE	LEAD AUTHOR, ORGANIZATION
Mon 8/5	**Session 1** **8:30 - 10:00 am** Large Commercial Demand Flexibility	*The cost of HVAC demand response: Using experimental data to track down the causes of inefficiency in sub-hourly HVAC load shifting*	Austin Lin, University of Michigan
		Optimal control strategies for multiple cooling towers for an existing building	Jin-Hong Kim, Seoul National University
		Analyzing The Impact Of Energy Efficient ASHRAE Guideline 36 Control Sequences On Demand Flexibility Potential Of Commercial Buildings: A Multi-Region Analysis	Weiping Huang, Lawrence Berkeley National Laboratory
	Session 2 **10:30 am - 12:00 pm** Powering the Future: Small commercial demand flexibility, fuel switching RTUs, and MPC	*Frozen Freedom: Unleashing Grocery Store Demand Flexibility*	Sarah Azmi Wendler, U.S. Department of Energy
		Drop-in Decarbonization with Smart Fuel-Switching RTUs	Jason LaFleur, GTI Energy
		Practical challenges and impacts of low-cost model predictive control (MPC) for grid-interactive small and medium commercial buildings.	Sang Woo Ham, Lawrence Berkeley National Laboratory
Tues 8/6	**Session 1** **8:30 - 10:00 am** Solar Sparks: Utility Innovation, Cost-Effective Solar and Demand Response with Battery Energy Storage Solutions (BESS)	*The best of both worlds: Combined thermal and battery storage for widespread building decarbonization*	Sven Mumme, U.S. Department of Energy
		A utility works to incentivize customers to install solar and dispatchable storage in their homes.	Chelsea Liddell, DNV
		Supercharging Demand Response Performance with Residential Batteries	Carly Olig, Guidehouse
	Session 2 **10:30 am - 12:00 pm** "In the Heat of the Moment": Recent Innovations on Thermal Energy Storage	*Equity, Electrification, and Time of Use (TOU) rates: Coupling Thermal Energy Storage with Heat Pumps for Improved Operational Efficiency*	Sara Sultan, Optimal Energy Group at NV5
		Demystifying Thermal Energy Storage: Evaluating The Tradeoffs Between Storage Sizing And Control Algorithm Complexity For Demand Flexibility	Armando Casillas, Lawrence Berkeley National Laboratory
		Advancements in combi heat pumps with thermal storage – a cornerstone solution for equitable and efficient grid-interactive electrification in cold climates	Jonathan Woolley, Emanant Systems

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Wed 8/7	**Session 1** **8:30 - 10:00 am** I'm Flexible When I'm Under Pressure: Heat Pump Water Heater and Demand Flexibility	*From One-Shift Wonder to Multi-Shift Maestro: Model Predictive Control for Smart Operation of Heat Pump Water Heaters*	Caton Mande, UC Davis Western Cooling Efficiency Center
		Grid-interactive Load Flexibility Control of Multifamily Heat Pump Water Heater Systems	Greg Pfotenhauer, Artemisia Energy
		Grid-connected heat pump water heater benefits for low-income households in the Southeastern United States	Daniela Urigwe, Energy Solutions
	Session 2 **10:30 am - 12:00 pm** Customers and Stakeholders: colors, apps and standards in engaging load flexibility	*SCE Flick Power Study: Pre-Attentive Color Schemes to Enhance Customer Responsiveness to Time-of-Use Electric Rates*	Andre Ramirez, Flick Power
		Introducing SG communication through telematics-based applications	Abigail Braun, ADM Associates
		Stakeholder perspectives on the role of standards in establishing a load flexible ecosystem	Sarah Outcault, UC Davis Energy and Efficiency Institute
Thurs 8/8	**Session 1** **8:30 - 10:00 am** Smart Strategies: Illuminating Demand Flexibility and Stakeholder Insights in Grid-Interactive Ecosystems	*The state of demand flexibility programs and rates and their role in managing peak demand*	Sean Murphy, Lawrence Berkeley National Laboratory
		Get Smart: The Business Case for Grid-Interactive, Efficient Buildings	Lian Plass, Urban Land Institute
		Assessing Customer Experience and Business Models around Price-to-Device Communication and Smart Control Pathways in CalFlexHub	Jingjing Liu, Lawrence Berkeley National Laboratory
	Session 2 **10:30 am - 12:00 pm** Blueprints for Tomorrow: Orchestrating Resilience an Efficiency in Connected Communities	*Architecting the Future: Exploring Coordinated Control Frameworks for Connected Communities*	Lazlo Paul, Lawrence Berkeley National Laboratory
		Harmonized Resilience at Roosevelt Village: How Futuristic Grid-Interactivity and Resilience Come Together in Senior Affordable Housing	Brett Webster, RMI
		Techno-Economic Analysis of High Efficiency and Connected DERs for Connected Communities – A Case Study in Seattle, WA	Siva Sankaranarayanan, EPRI

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Fri 8/9	**Session 1** **8:30 - 10:00 am** Smart Thermostats Again? Questions and Solutions for this Established Technology	*Implementing Load Flexibility Programs For Low Income Households to Help Alleviate Energy Burden*	Adam Farabaugh, Uplight
		Smart Thermostats and Heat Pumps: Incompatible? Or just need counseling?	Therese Peffer, California Institute for Energy and Environment
		Utilities and the Future: A west-coast utility invests in an internal Virtual Power Plant platform and partners for rapid-turnaround evaluation of programs	Tom Smith, PSE
	Session 2 **10:30 am - 12:00 pm** Semantics Unleashed: Lighting, BRICK and Plug Loads, and Building Automation Futures	*Digitization, Standards and Interoperability: Lighting as a Team Player*	Carol Jones, DALI Alliance
		BRICK Schema Standardized Plug Load Control Strategies for Load Reduction and Demand Response	Keaton Chia, University of California San Diego
		Digital and Interoperable: the future of building automation is on the horizon. What's in it for me?	Marco Pritoni, Lawrence Berkeley National Laboratory