

IEEE PELS TC1

COMPEL 2025 Proposal

3/8/2022

Daniel Costinett
University of Tennessee Knoxville

Knoxville, TN
June 22-26, 2025



Local Organizing Committee

- Chair: Daniel Costinett
 - Associate Professor, UTK



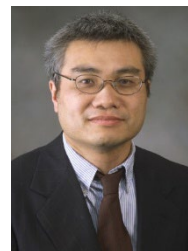
THE UNIVERSITY OF
TENNESSEE



- Vice Chair: Burak Ozpineci
 - Corporate Fellow & Head, Vehicle and Mobility Systems Research Section, ORNL



- Helen Cui, Kevin Bai, Leon Tolbert, Fred Wang



Select Prior Conference Organization

Conference	Host
2014 IEEE Workshop on Wide Bandgap Power Devices and Applications (WiPDA)	ORNL / UTK
2016 IEEE PELS Workshop on Emerging Technologies: Wireless Power Transfer (WoW)	ORNL / UTK
2012-2021 CURENT annual industry conference and NSF/DOE site visit	UTK
2022 IEEE International Future Energy Competition (IFEC)	UTK

Conference	D. Costinett Role
IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)	2018 Awards Committee 2014,18,19 Technical Committee 2023-24 Organizing Committee
IEEE PELS Workshop on Emerging Technologies: Wireless Power Transfer (WoW)	2016 Finance Chair
IEEE Workshop on WBG Power Devices and Apps (WiPDA)	2014 Local Chair 2015 Tutorials Chair
IEEE International Future Energy Competition (IFEC)	2022 Co-Chair
IEEE Energy Conversion Congress and Exposition (ECCE)	2021-22 Vice Chair

UTK Conference Planning Services

- Fully-featured Conferences & Event Services Office
- One-stop-shop for all conference planning activities starting Fall 2022

CONFERENCESThe T icon is a white 'T' inside an orange square.

CONFERENCES We've Got Everything Checked

 Event Planning Assistance	 Budget Consultation and Management	 Staff Recruitment and Hiring of Event Personnel	 Full Registration Services	 Audio Visual Coordination
 Design and Print Event Materials	 Food and Beverage Management	 Facility Reservations and Management	 Housing Reservations and Contracts	 Excursions and Tours
 Logistical Planning and On-site Management	 Receiving/ Drayage of Event Shipments	 Airport Shuttle Services	 Event Rentals Coordination	 Exhibit Set-up and Management

Registration Services



Event Support

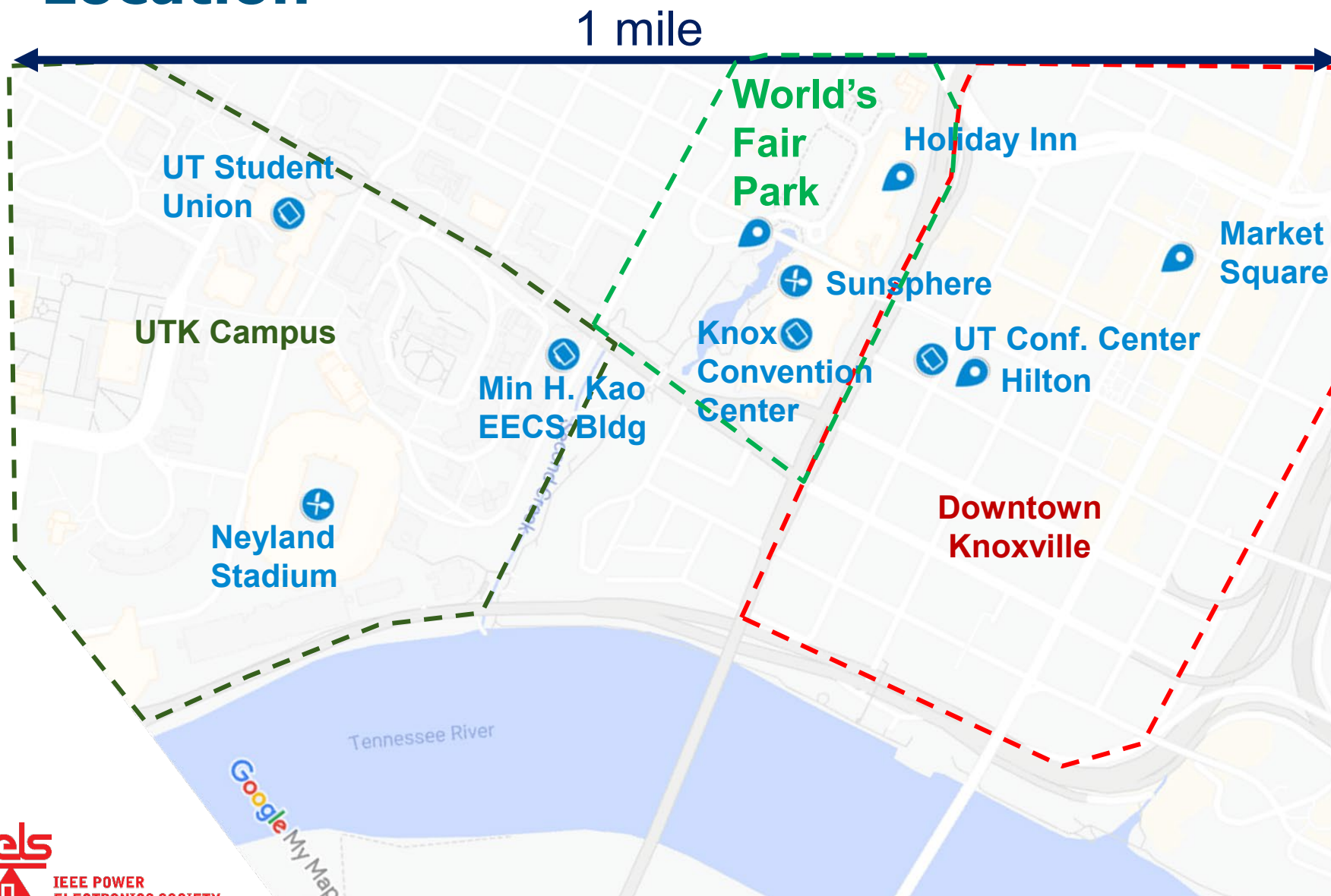


Housing Options



Location and Facilities

Location



Potential Venues

1 mile

1. UT Student Union



3. Min H. Kao EECS Bldg



2. Knox Convention Center



5. UT Conf. Center
4. Hilton

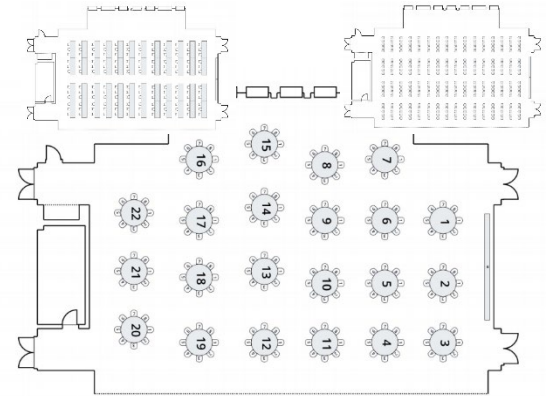


Tennessee River

Google My Map

UTK Student Union

- New construction opened January 2019
- Located in the heart of campus
- Within 1 mile of 5 hotels
- Rooms up to 12,000 sq.ft. / 600 occupancy
 - Multiple rooms can accommodate over 100 attendees



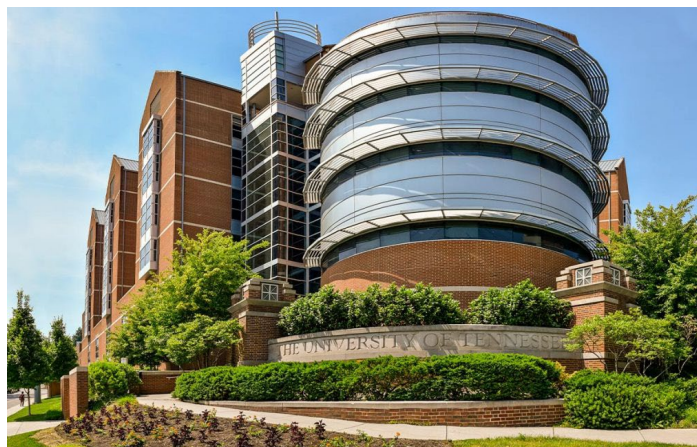
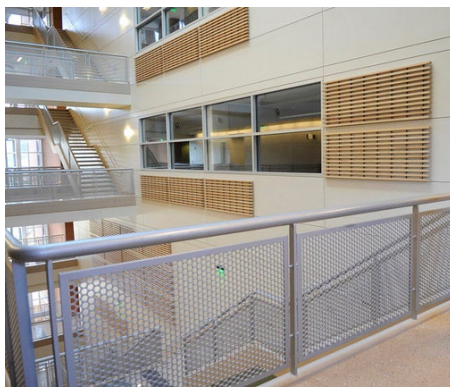
Knoxville Convention Center

- Located off-campus in World's Fair Park
- Flexible 27,000 square foot ballroom
- Indoor/outdoor dining space



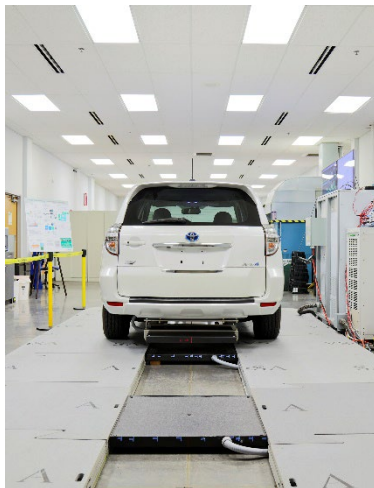
Min H Kao EECS Building

- Constructed in 2012
- All A/V technology upgraded in 2021
- Auditorium-style classrooms with 100 (x2) and 147 seats
- Sixth-floor terrace overlooking downtown Knoxville
- Home to CURENT Power Electronics and Power Systems Labs



Events

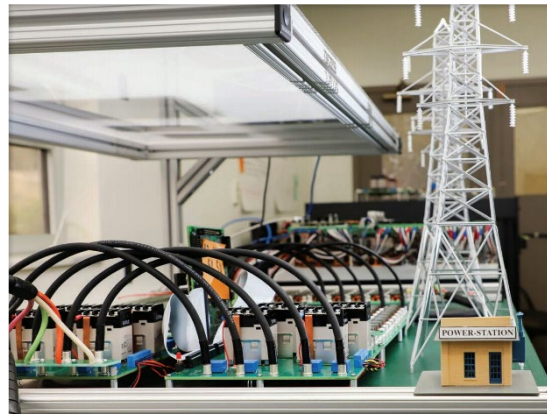
Facilities and Tours



ORNL Tour

Hardin Valley Campus Includes

- National Transportation Research Center (NTRC)
- Manufacturing Demonstration Facility (MDF)
- Grid Research Integration and Deployment Center (GRID-C)



CURRENT Lab Tour

Housed in Min Kao EECS Building

- UTK Power Electronics Lab
 - 1 MW reconfigurable PE load
- High Power Lab
 - Reconfigurable PE-based grid emulator
- Visualization Studio

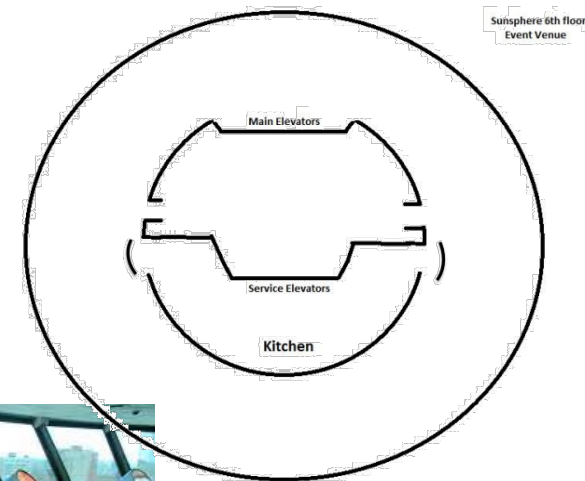


Social Event



Knoxville Sunsphere

- One level accommodates 180, seated
- Second floor adds 50 seats
- Overlooks downtown, World's Fair Park, and UTK Campus
- Observation deck with historical information



Workshop Themes & Conference Program

- Modeling and Simulation of Power Converters
- Control of Power Converters
- Design, Optimization, and Simulation Tools
- Education

Themes:

- Power Electronics for Electric Vehicles and Renewable Energy
- Intelligent Design and Optimization Techniques for Power Electronics
 - Topologies and Implementation
- Passive Component Materials, Structures, and Design Techniques
- Access and Equity in Power Electronics Education

Preliminary Schedule

	Monday	Tuesday	Wednesday	Thursday
8:00 AM				
9:00 AM				
10:00 AM	Tutorials	Plenary	Technical Sessions	Technical Sessions
11:00 AM				
12:00 PM	Lunch	Lunch	Lunch	Lunch
1:00 PM	Tutorials	Technical Sessions	Technical Sessions	Technical Sessions
2:00 PM				
3:00 PM	ORNL Lab Tour			
4:00 PM		Poster Sessions		
5:00 PM				
6:00 PM		Welcome Reception		Dinner and Award Ceremony
7:00 PM			Social Event	
8:00 PM		CURRENT Lab Tour		
9:00 PM				
10:00 PM				

Coffee available in the morning and at breaks
mid-session morning and afternoon

Pre-Conference Budget

Revenues	150 Attendees			200 Attendees		
	No	ppu	Total	No	ppu	Total
Student Registration	90	\$ 400.00	\$ 36,000.00	120	\$ 400.00	\$ 48,000.00
PELS Member Registration	60	\$ 600.00	\$ 36,000.00	80	\$ 600.00	\$ 48,000.00
Onsite Registration (add'l)	15	\$ 200.00	\$ 3,000.00	20	\$ 200.00	\$ 4,000.00
			\$ -			\$ -
Sponsors	4	\$ 2,500.00	\$ 10,000.00	4	\$ 2,500.00	\$ 10,000.00
Food & Bev Credit	1	\$ 7,987.50	\$ 7,987.50	1	\$ 9,600.00	\$ 9,600.00
Total Revenue:			\$ 92,987.50			\$ 119,600.00
Expenses	150 Attendees			200 Attendees		
	No	ppu	Total	No	ppu	Total
Registration	1	\$ 3,500.00	\$ 3,500.00	1	\$ 3,500.00	\$ 3,500.00
Promotional	1	\$ 500.00	\$ 500.00	1	\$ 500.00	\$ 500.00
Honorarium / Awards	1	\$ 2,000.00	\$ 2,000.00	1	\$ 2,000.00	\$ 2,000.00
A/V	1	\$ 2,000.00	\$ 2,000.00	1	\$ 2,000.00	\$ 2,000.00
Signage	1	\$ 100.00	\$ 100.00	1	\$ 100.00	\$ 100.00
Badging / Proceedings	1	\$ 2,000.00	\$ 2,000.00	1	\$ 2,000.00	\$ 2,000.00
Venue Rental	1	\$ 9,600.00	\$ 9,600.00	1	\$ 9,600.00	\$ 9,600.00
			\$ -			\$ -
Meals	5	\$ 5,124.00	\$ 25,620.00	6	\$ 6,669.33	\$ 40,016.00
Coffee / Snacks	8	\$ 2,401.88	\$ 19,215.00	8	\$ 3,202.50	\$ 25,620.00
Social Event Reservation	1	\$ 5,900.00	\$ 5,900.00	1	\$ 5,900.00	\$ 5,900.00
Social Event Food/Bev	1	\$ 6,300.00	\$ 6,300.00	1	\$ 8,400.00	\$ 8,400.00
Total Expenses:			\$ 76,735.00			\$ 99,636.00
Surplus:			\$ 16,252.50			\$ 19,964.00
Surplus:			17%			20%

Possible Industry Sponsors

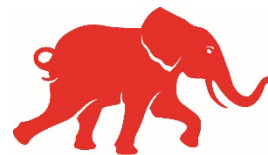


Volkswagen



TEXAS
INSTRUMENTS

HEVO

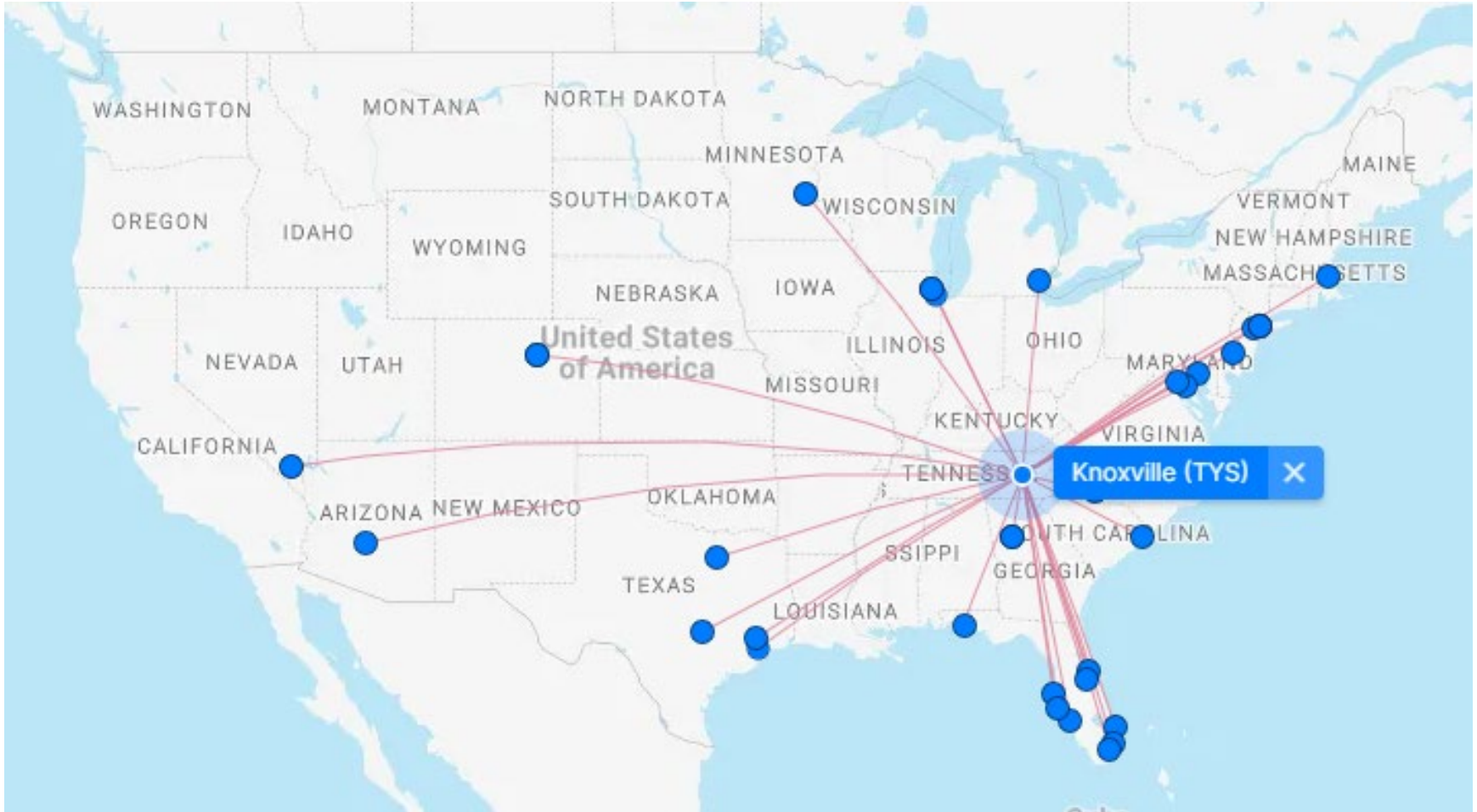


Typhoon HIL

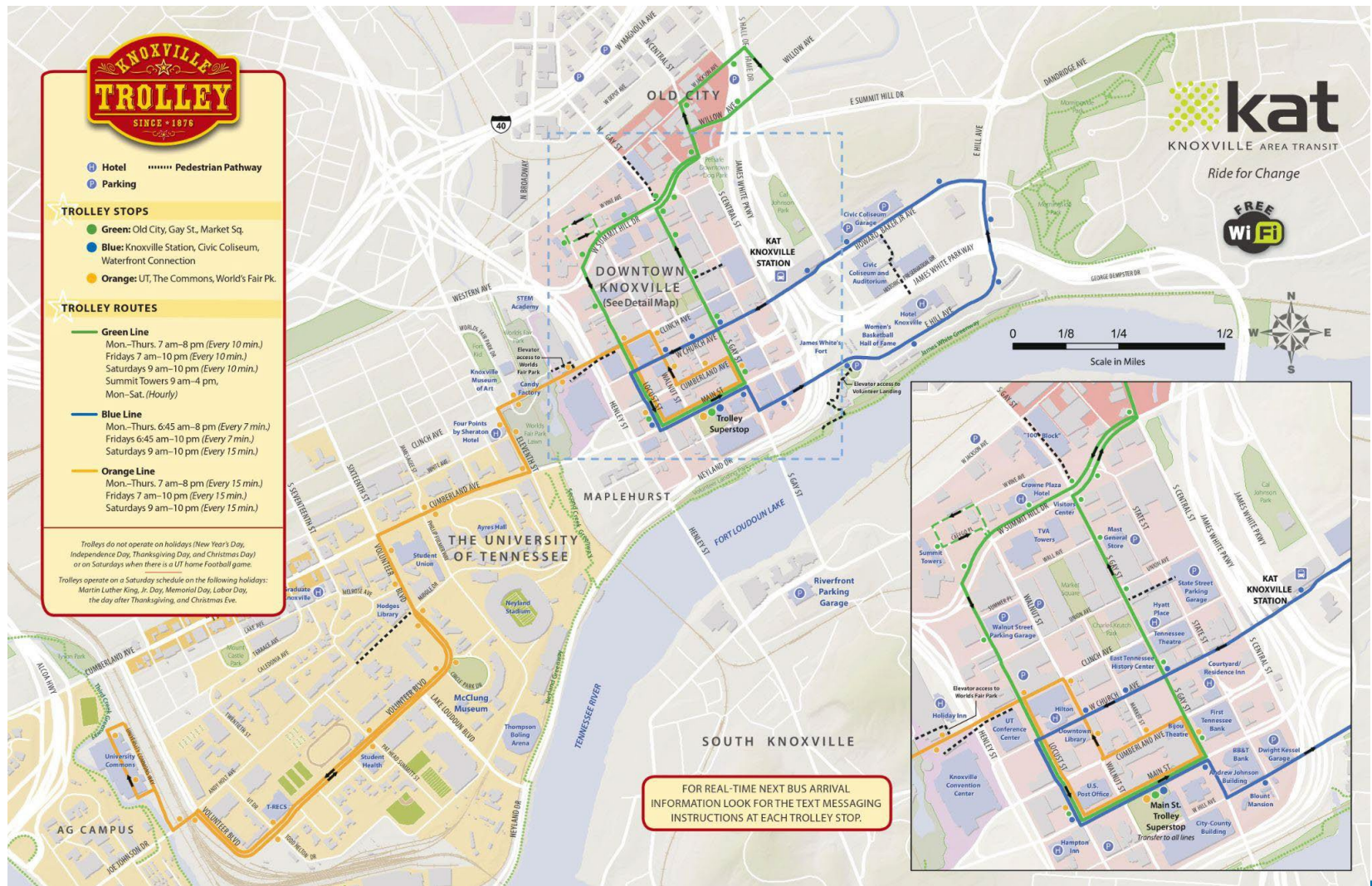


Local Arrangements

Travel



Local Transportation



Free-Time Activities in Knoxville



American Museum of Science and Energy (AMSE) Bus Tours

The AMSE tour includes a bus tour that visits sites such as the Y-12 New Hope Center, ORNL's Graphite Reactor, and the K-25 History Center

Ijams Nature Center

315 Acres of hiking biking, paddling, swimming, climbing, exercise, and play including ropes course and ziplines



Knoxville Zoo

Attractions include Tiger Forest, Red Panda Village, and the Gorilla Valley. The Amphibian and Reptile Conservation Campus opened in 2021.

Knox Brew Tours

Walking (downtown) or "brew bus" tours and tastings at 7+ local breweries



Nearby Activities – 1 Hour Drive

Great Smoky Mountain National Park
UNESCO World Heritage Site and most-visited national park in the US



Dollywood

Dolly Parton theme park containing rides, waterpark, games, and traditional crafts and music of the Smoky Mountain area

Gatlinburg

The most popular entrance to the Great Smoky Mountain National Park, Gatlinburg is full of souvenir shops, craft stores, restaurants and kitschy attractions



Why Knoxville / Why Now?

- Collaboration between UTK and ORNL
- NSF/DOE ERC CURENT graduated in 2022
 - Opportunity to share results and give back to the community
- Expansion of Power Electronics at ORNL
- Knoxville is home to Peter Tsai, inventor of N95 mask