

# EIA-930 Hourly Electricity Balancing Authority Data



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*Office of Electricity, Renewables, and Uranium Statistics*

# EIA clearinghouse of hourly electric power data in 2015

- EIA is implementing a new survey of hourly electric power data from the 67 electric systems (balancing authorities) in the contiguous United States that make up the national grid. (EIA-930)
- Data collection began in March 2015 with a handful of BAs and has been gradually ramping up. Currently 44 BAs are consistently reporting accurate and timely data.
- A beta site for review by industry experts should be available in the next few weeks.
- Once the survey is fully operational EIA will provide “real-time” public access to this data as soon as it is collected through a clearinghouse on its website in Summer 2015.



# Electricity balancing authorities

<b>AEC</b>	PowerSouth Energy Cooperative	<b>NEVP</b>	Nevada Power Company
<b>AECI</b>	Associated Electric Cooperative, Inc.	<b>NSB</b>	New Smyrna Beach, Utilities Commission of
<b>AVA</b>	Avista Corporation	<b>NWMT</b>	NorthWestern Corporation
<b>AZPS</b>	Arizona Public Service Company	<b>NYIS</b>	New York Independent System Operator
<b>BANC</b>	Balancing Authority of Northern California	<b>OVEC</b>	Ohio Valley Electric Corporation
<b>BPAT</b>	Bonneville Power Administration	<b>PACE</b>	PacifiCorp East
<b>CHPD</b>	Public Utility District No. 1 of Chelan County	<b>PACW</b>	PacifiCorp West
<b>CISO</b>	California Independent System Operator	<b>PGE</b>	Portland General Electric Company
<b>CPLE</b>	Duke Energy Progress East	<b>PJM</b>	PJM Interconnection, LLC
<b>CPLW</b>	Duke Energy Progress West	<b>PNM</b>	Public Service Company of New Mexico
<b>GRID</b>	Gridforce Energy Management, LLC	<b>PSCO</b>	Public Service Company of Colorado
<b>DEAA</b>	Arlington Valley, LLC - AVBA	<b>PSEI</b>	Puget Sound Energy, Inc.
<b>DOPD</b>	PUD No. 1 of Douglas County	<b>SC</b>	South Carolina Public Service Authority
<b>DUK</b>	Duke Energy Carolinas	<b>SCEG</b>	South Carolina Electric & Gas Company
<b>EEI</b>	Electric Energy, Inc.	<b>SCL</b>	Seattle City Light
<b>EPE</b>	El Paso Electric Company	<b>SEC</b>	Seminole Electric Cooperative
<b>ERCO</b>	Electric Reliability Council of Texas, Inc.	<b>SEPA</b>	Southeastern Power Administration
<b>FMPP</b>	Florida Municipal Power Pool	<b>SOCO</b>	Southern Company Services, Inc. - Trans
<b>FPC</b>	Duke Energy Florida, Inc.	<b>SPA</b>	Southwestern Power Administration
<b>FPL</b>	Florida Power & Light Co.	<b>SRP</b>	Salt River Project Agricultural Improvement and Power District
<b>GCPD</b>	Public Utility District No. 2 of Grant County, Washington	<b>SWPP</b>	Southwest Power Pool
<b>GRIF</b>	Griffith Energy, LLC	<b>TAL</b>	Tallahassee, City of
<b>GRMA</b>	Gila River Power, LLC	<b>TEC</b>	Tampa Electric Company
<b>GVL</b>	Gainesville Regional Utilities	<b>TEPC</b>	Tucson Electric Power
<b>GWA</b>	NaturEner Power Watch, LLC (GWA)	<b>TIDC</b>	Turlock Irrigation District
<b>HGMA</b>	New Harquahala Generating Company, LLC - HGBA	<b>TPWR</b>	City of Tacoma, Department of Public Utilities, Light Division
<b>HST</b>	Homestead, City of	<b>TVA</b>	Tennessee Valley Authority
<b>IID</b>	Imperial Irrigation District	<b>WACM</b>	Western Area Power Administration - Rocky Mountain Region
<b>IPCO</b>	Idaho Power Company	<b>WALC</b>	Western Area Power Administration - Desert Southwest Region
<b>ISNE</b>	ISO New England	<b>WAUE</b>	Western Area Power Administration - Upper Great Plains East
<b>JEA</b>	JEA	<b>WAUW</b>	Western Area Power Administration - Upper Great Plains West
<b>LDWP</b>	Los Angeles Department of Water and Power	<b>WWA</b>	NaturEner Wind Watch, LLC
<b>LGEE</b>	Louisville Gas & Electric Company & Kentucky Utilities Company	<b>YAD</b>	Alcoa Power Generating, Inc. - Yadkin Division
<b>MISO</b>	Midcontinent Independent System Operator, Inc.		

# EIA-930 data elements

- Posted in “real-time”; about a two hour lag
  - Hourly demand
- Posted each morning
  - The demand forecast for that day
  - Hourly net generation for the prior day
  - Total net interchange for the prior day
- Posted with a two day lag
  - Hourly net interchange with each connected BA

# Uses for EIA-930 data

The immediacy of the data will allow people to experience the data in context, significantly enhancing understanding.

Many possible uses of the data, including:

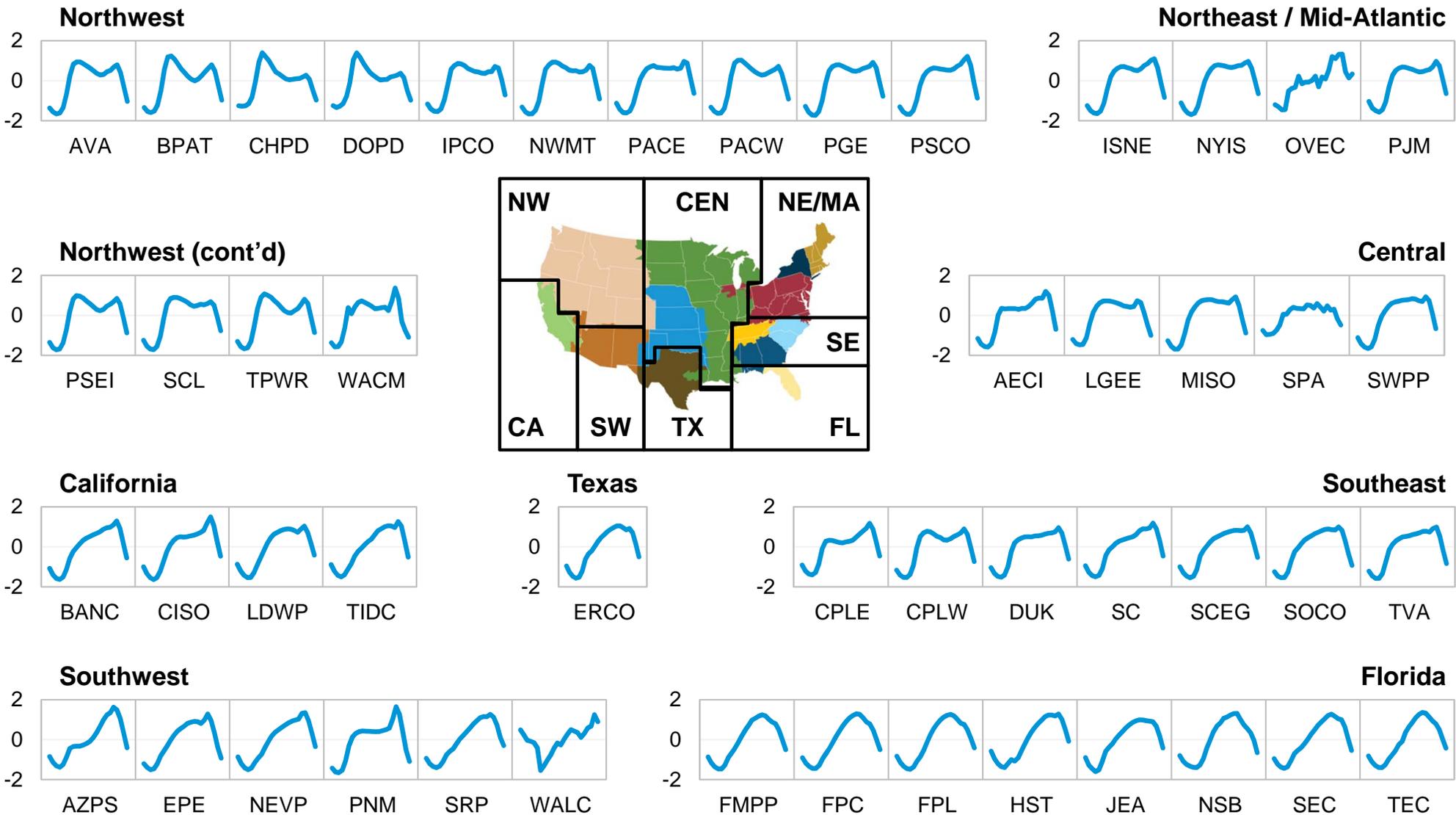
- To evaluate the impact of **renewable power, smart grid, and demand response programs** on the power industry.
- To provide near real-time information on the **recovery of the electric grid** in the wake of disturbances (e.g., hurricanes).
- To provide state and local officials deploying **demand response and dynamic pricing programs** information on the impact of these programs on consumers.
- To allow policy makers, researchers, market participants and entrepreneurs to invest in technologies and programs to **take advantage of the time-varying nature** of electric operations

# One application of EIA-930 data: Load shapes

- We are collecting hourly demand data, which can be used to see the daily load shape of each BA.
- Load shapes vary by region, climate, and time (daily, monthly, seasonally). This means that policies affected by and affecting electricity demand in the U.S. cannot be one size fits all.
- Aggregate analyses often don't show the full range of variability, which is critical to understanding the dynamic nature and physical operational needs of electric systems at the distribution and transmission levels. The EIA-930 provides hourly granularity.

# March through May average daily load shapes

*averaged daily normalized values*

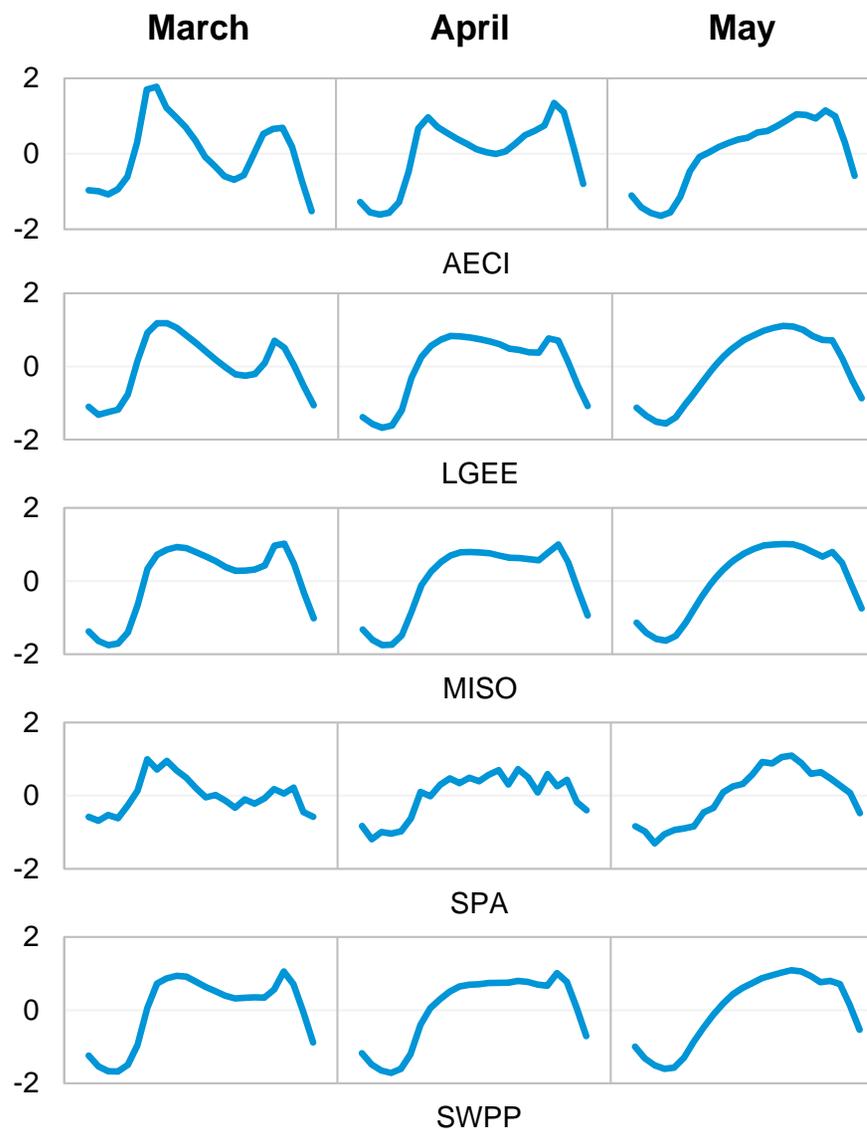
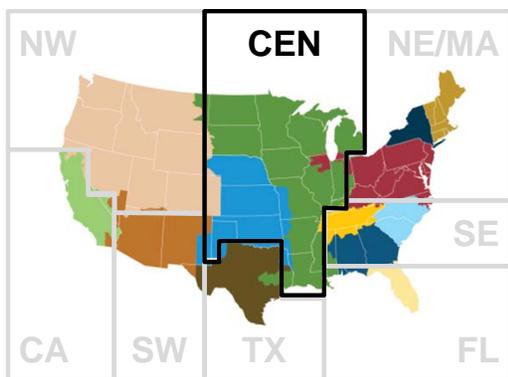


Data used for analysis may include reporting errors and may not cover full time period.

# March, April, May average daily load shapes

*averaged daily normalized values*

## Central region

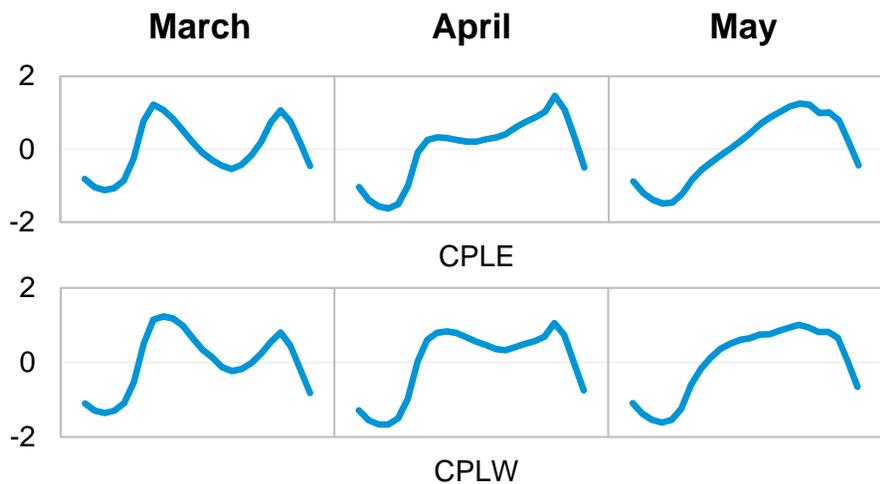
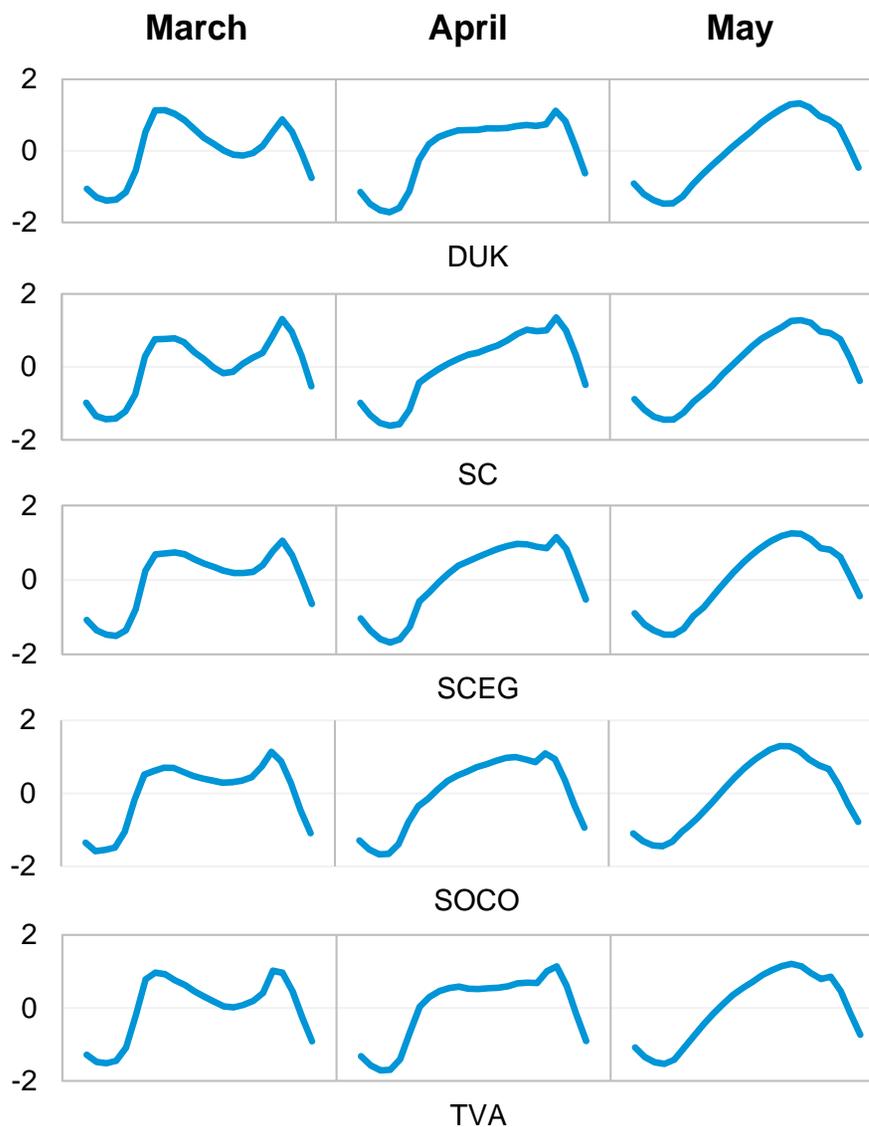
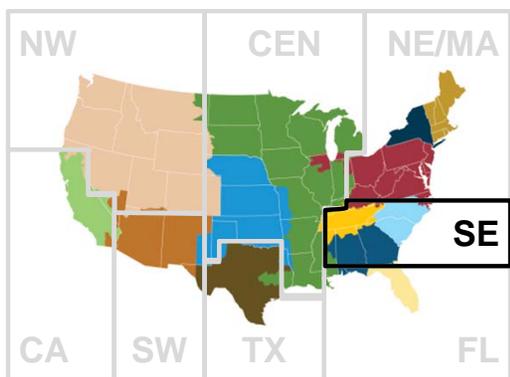


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# March, April, May average daily load shapes

*averaged daily normalized values*

## Southeast region

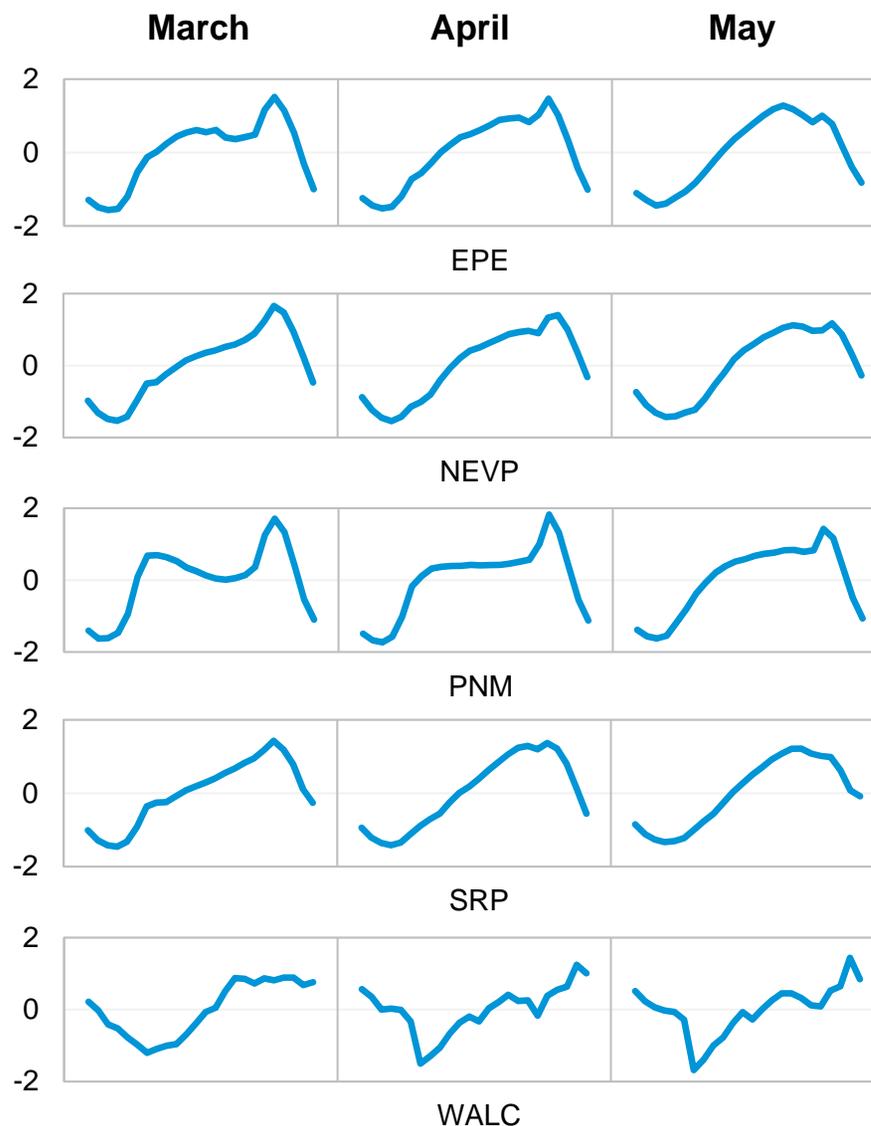
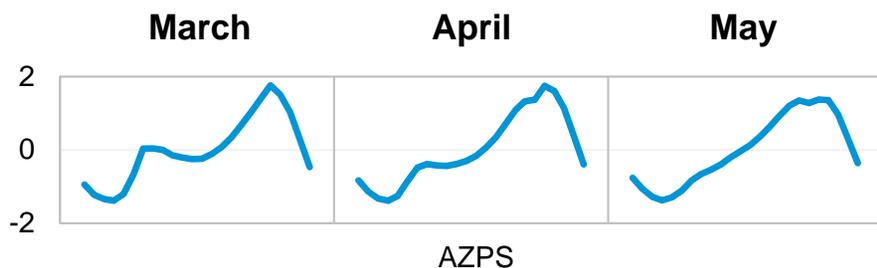
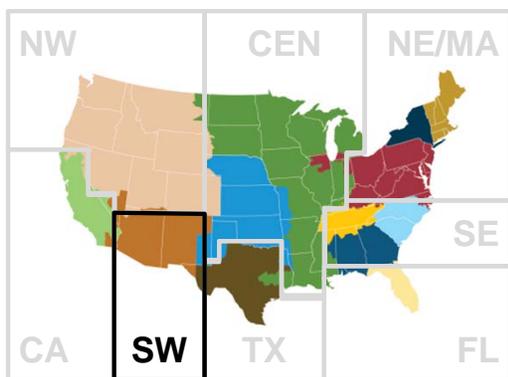


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# March, April, May average daily load shapes

*averaged daily normalized values*

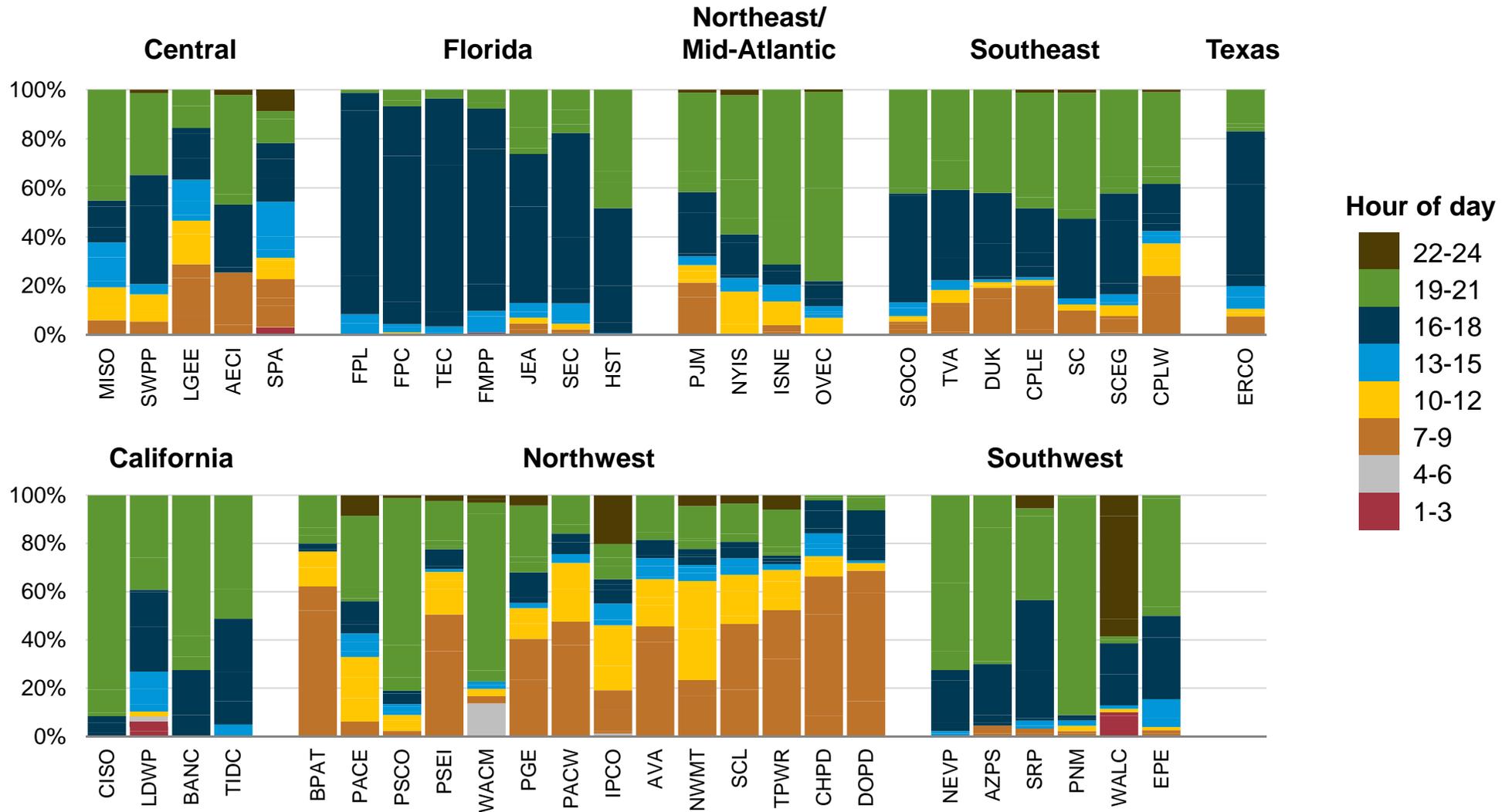
## Southwest region



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# Characterizing March-May load patterns

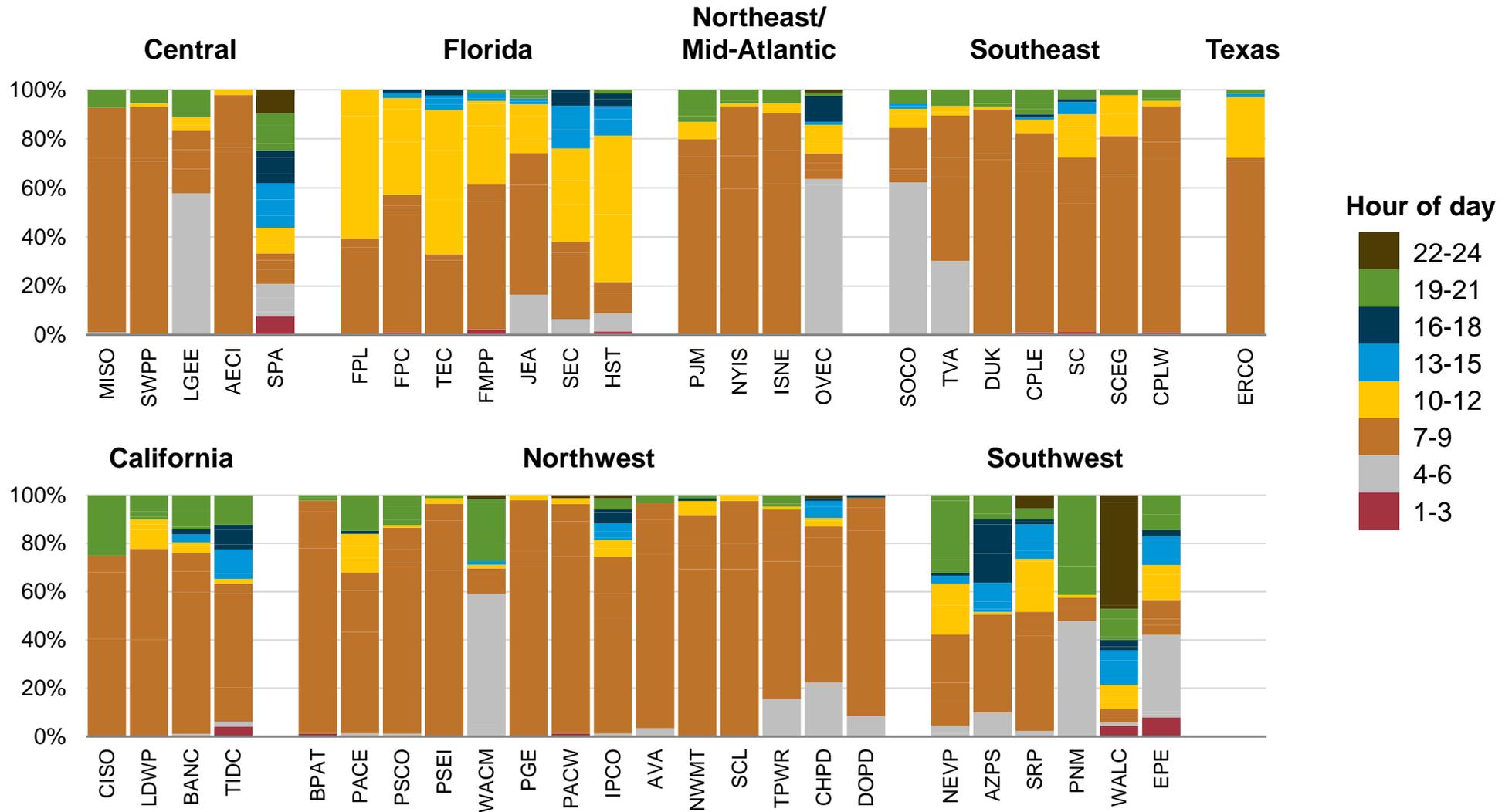
## Hour of daily peak demand



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# Characterizing March-May load patterns

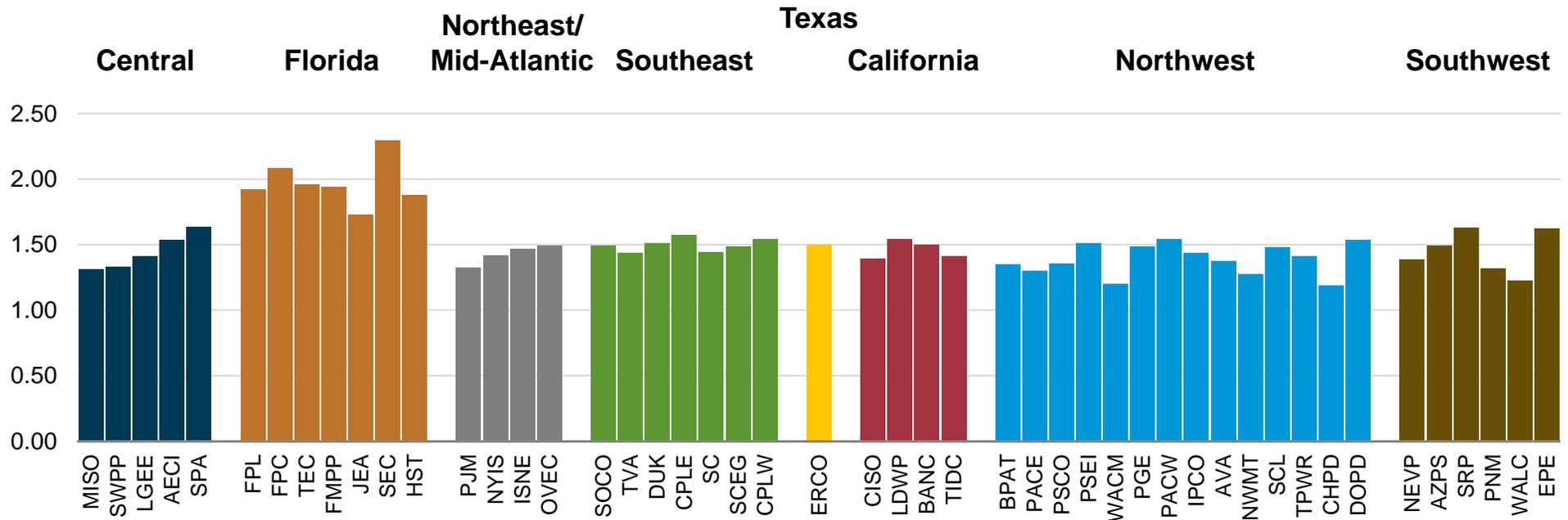
## Hour of daily max ramp up



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# Characterizing March-May load patterns

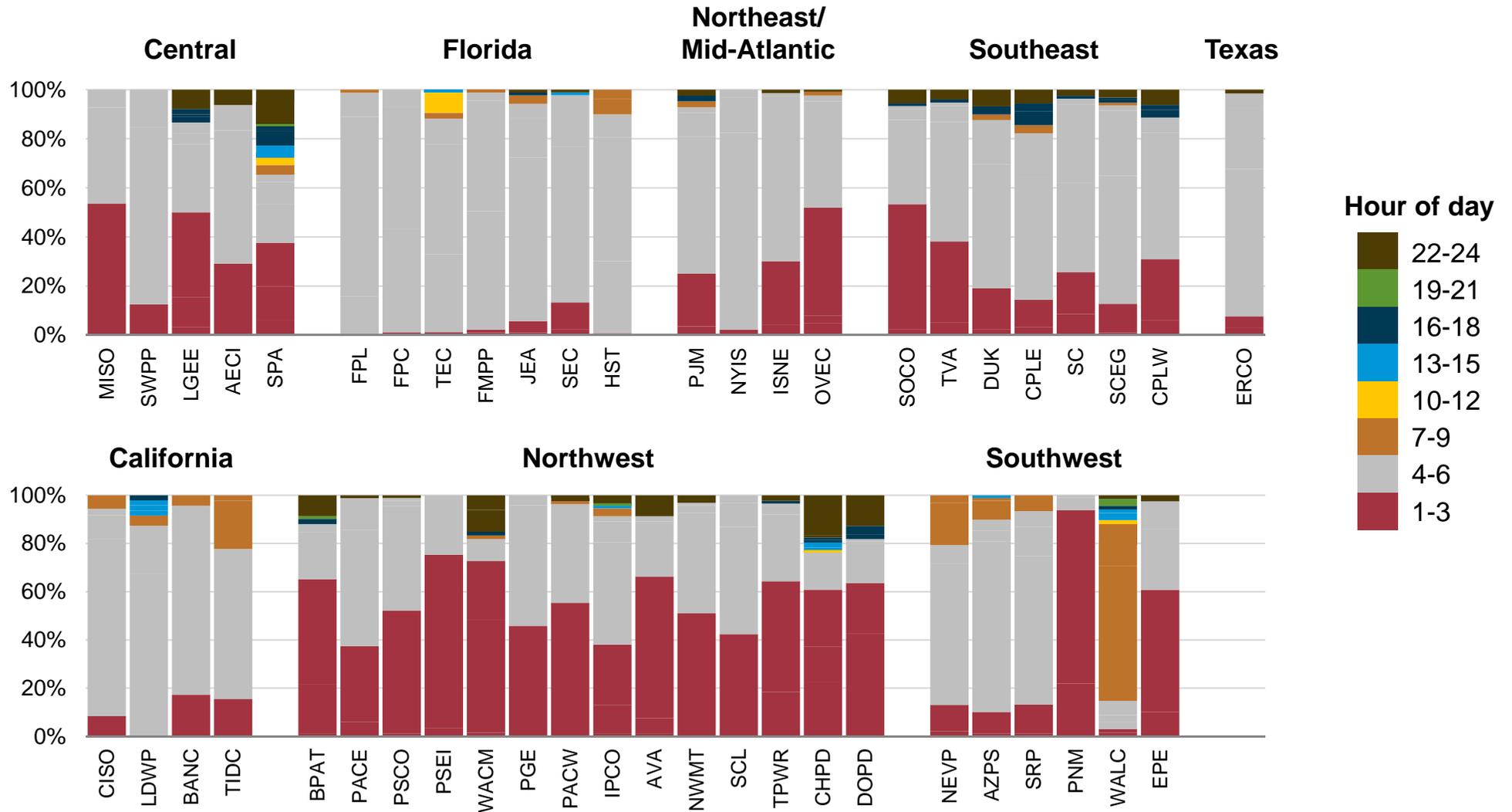
## Average daily max-to-min demand ratio



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# Characterizing March-May load patterns

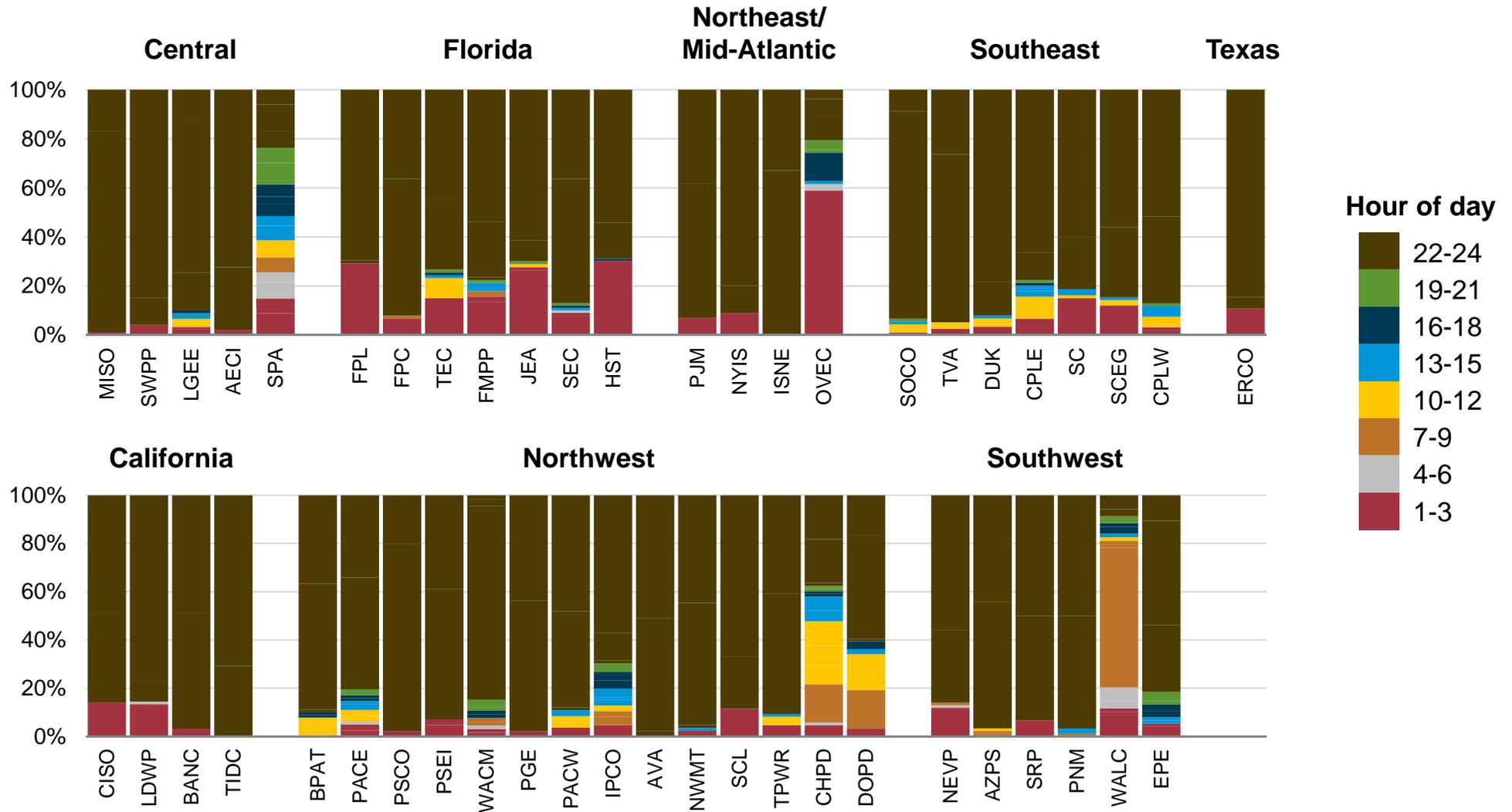
## Hour of daily minimum demand



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# Characterizing March-May load patterns

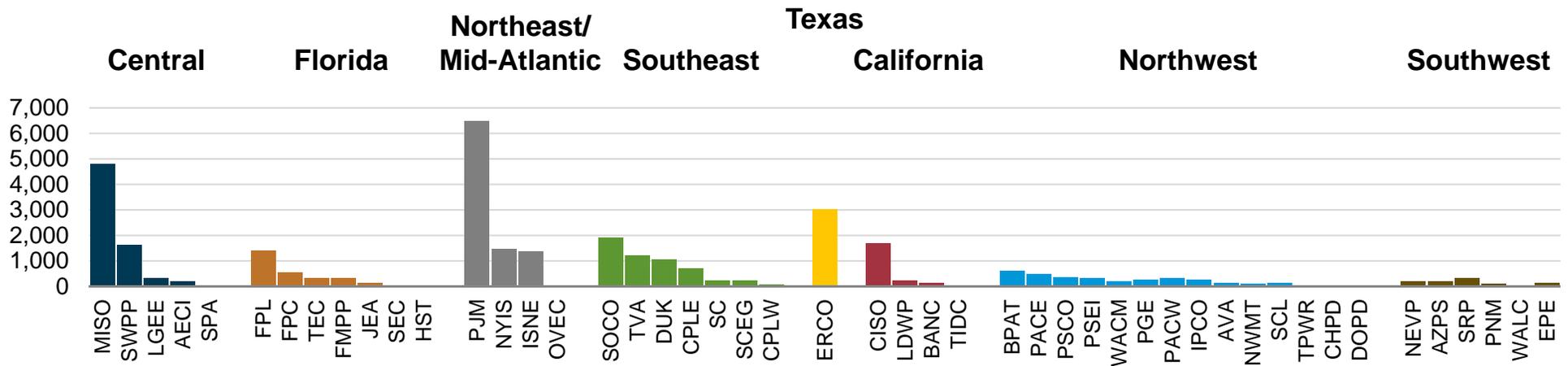
## Hour of daily max ramp down



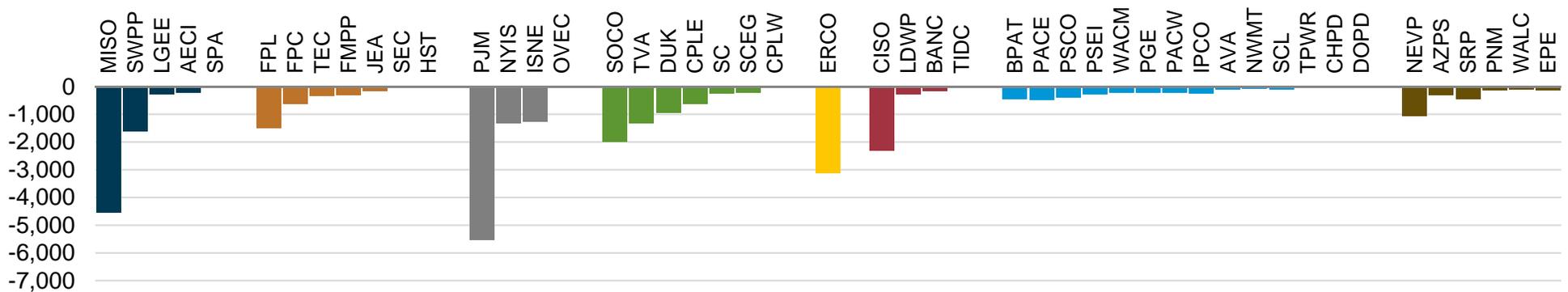
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# Characterizing March-May load patterns

## Average daily max ramp up



## Average daily max ramp down



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# For more information

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