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Independent System Operator

Load Shape Adjustment Procedure for IRM/LCR Studies

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Background

- **NYISO Staff presented the Load Shape Adjustment process to ICS in 2016 outlining the general process for creating IRM Study load shapes**
  - http://nysrc.org/pdf/MeetingMaterial/ICSMeetingMaterial/ICS_Agenda%20182/ICS_20160329_Load_Shape_Dev_Process_v3%20(002).pdf
- **NYISO Staff updated the Load Shape Adjustment process in 2019 using Python**
  - This automation followed the steps outlined in the 2016 presentation on load shape development
- **Reasons for update:**
  - Repeatable Adjustments (no subjectivity)
  - Time Savings (easy to adapt to new forecasts)
  - Better handling of constrains (e.g., G-J Locality)
- **Process actively used for IRM/LCR studies**

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Load Shape Tool Workflow

- **Import Input Data**
- **Perform Adjustments**
  1. Match Zonal NCP Targets
  2. Match Constraint Peaks
     - NYCA Coincident Peak
     - G-J Locality Peak
- **Export Data**

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Input Data Requirements

- **Historic Load Shapes**
  - LFU Bin 1: 2006
  - LFU Bin 2: 2002
  - LFU Bin 3 - 7: 2007
- **Adjustment Targets**
  - NYISO Gold Book Forecast & subsequent updates

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Zonal NCP Adjustment

- **Adjustment Method:**
  - Scale each zonal shape to match target peak
  - We adjust all hours of the year based on NCP adjustment ratio, which is the zonal NCP value of the forecast year versus the historic year
  - For example, if the zonal NCP value is 2,800 MW in the forecast year and 2,900 MW in the historic year in Zone A, the NCP adjustment ratio would be 2,800/2,900=0.95. All hours of historic load shape in Zone A need to be multiplied by 0.95

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NYCA & G-J Peak Adjustment

- **Adjustment Method: (set NYCA first, then G-J)**
  - Find time of peak in historic shape
  - Perform in-day adjustment to each zone at the peak hour
  - Adjust adjacent hours
    - Generally, if coincident peaks are adjusted upwards, shift adjacent hours upwards to avoid an anomalous single hour load value
    - Generally, if coincident peaks are adjusted downwards, shift adjacent hours downwards to provide that adjacent hours do not exceed the coincident peak value
  - Verify all target values are satisfied

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Example Framework

- **Based on 2006 Historic Load Shape**
  - Adjust to 2021 ICAP Forecast
  - This shape is used in 2021 LCR Study
- **All examples show data for day 8/2**
- **Important Dates and Times:**
  - NYCA Peak: 8/2 Hour 14
  - G-J Locality Peak: 8/2 Hour 16

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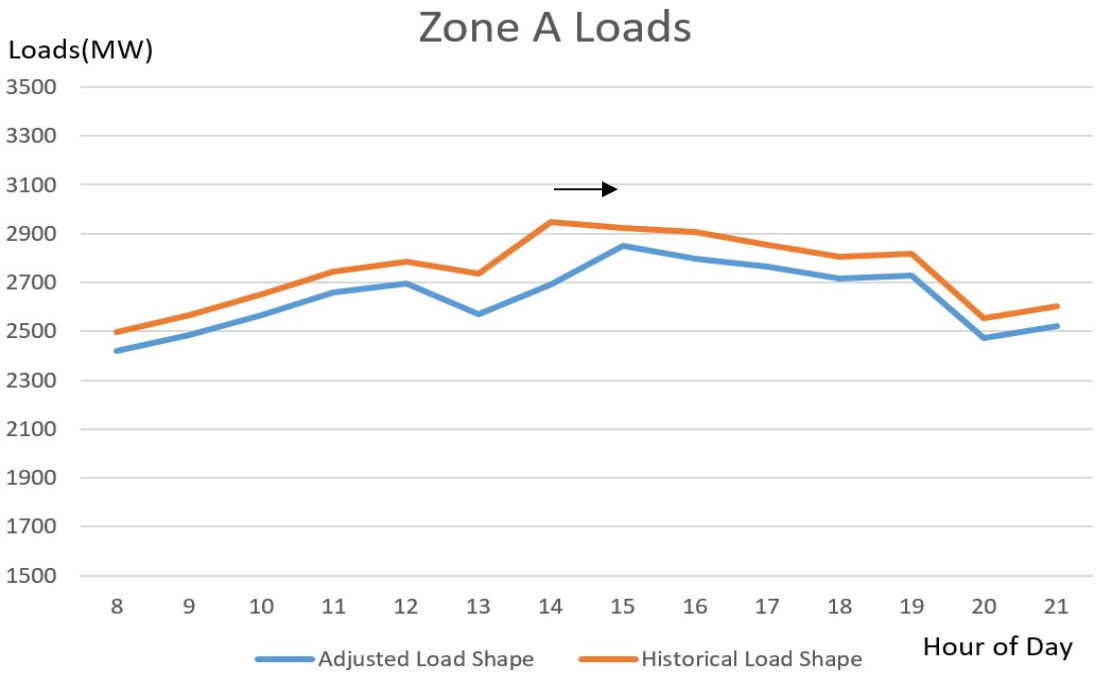
Zone A Example



Zone A Notes:

- Coincident with NYCA Peak
- Hour swap performed to maintain NCP and NYCA CP
  - Hour14/Hour15
- Exhibits downward adjustment to meet NYCA CP, excludes NCP hour

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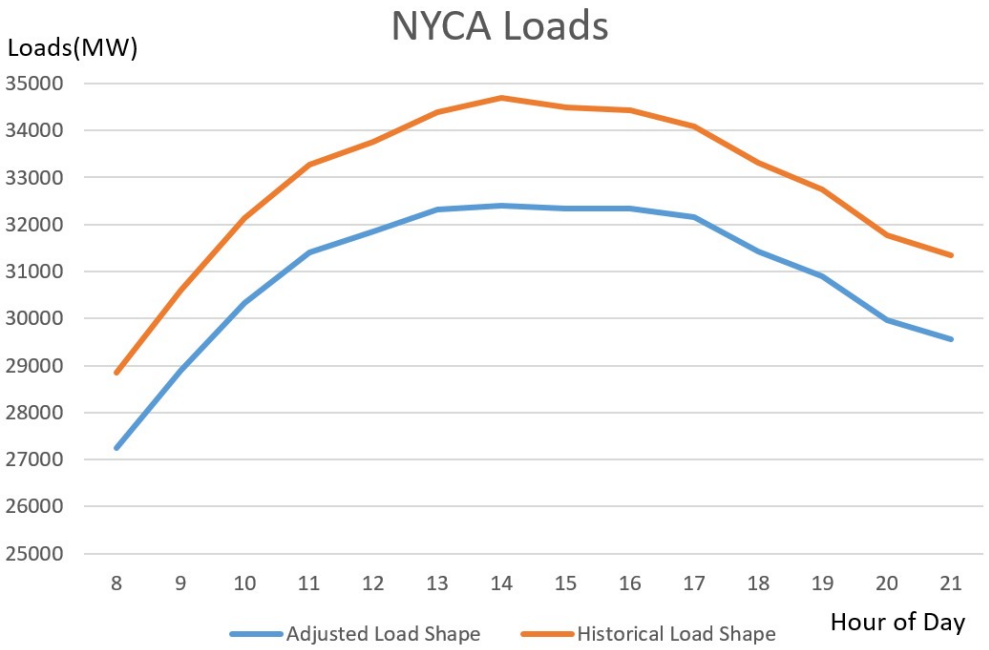
NYCA Example



NYCA Notes:

- Exhibits upward adjustment to meet NYCA CP

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Next Steps

- NYISO recommends that the ICS post load shapes for the preliminary base case and final base case each year using this load shape adjustment procedure

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Questions?