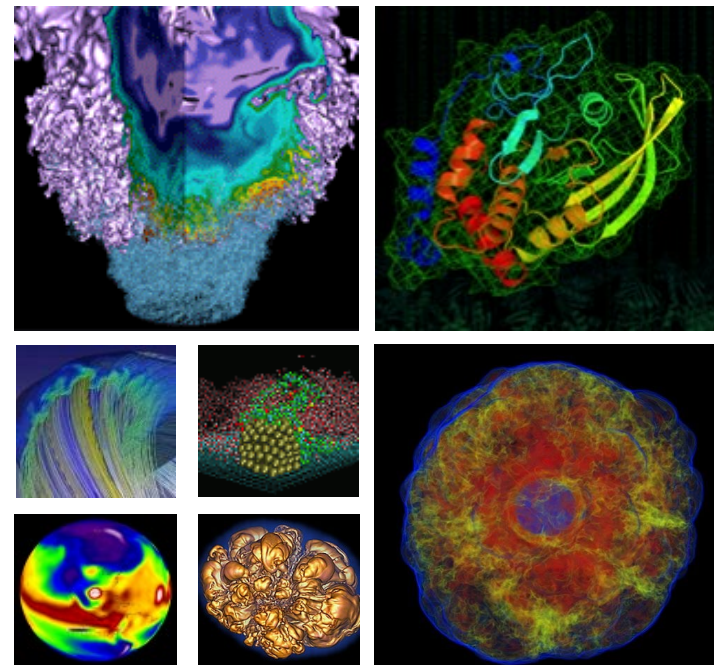


# Operational Metrics



Tina Declerck,  
July 19, 2019

# Agenda

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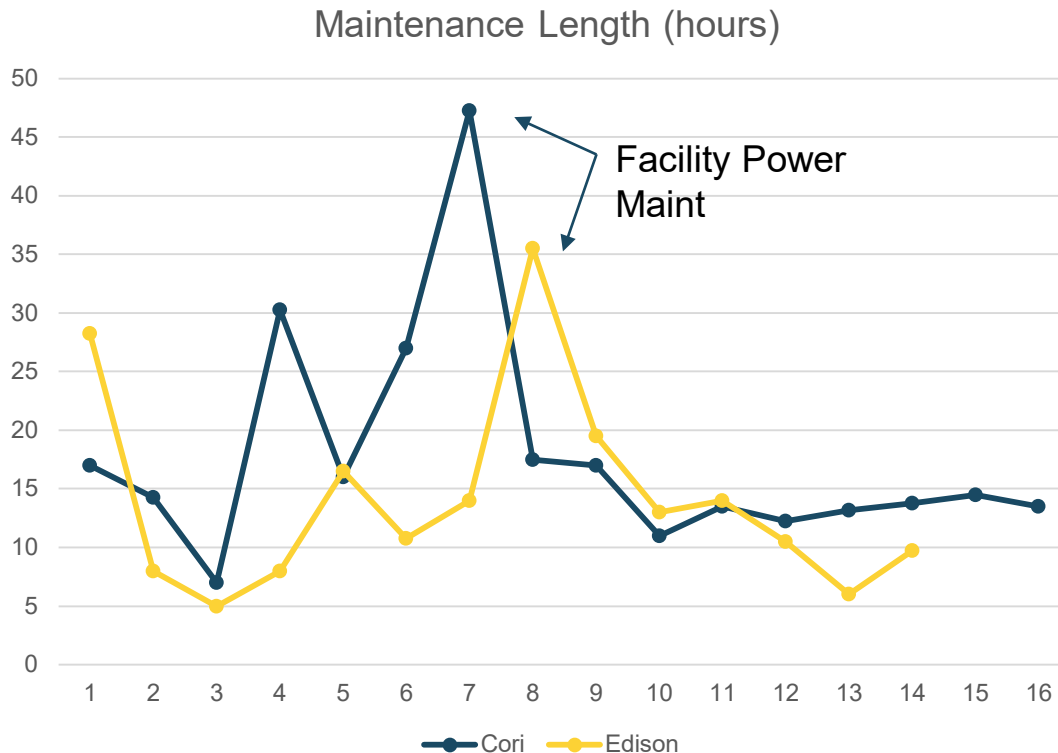


- Metrics Overview
- Utilization
- Availability
- Queues
- Tickets & Consulting
- Conclusion

# Metrics Overview



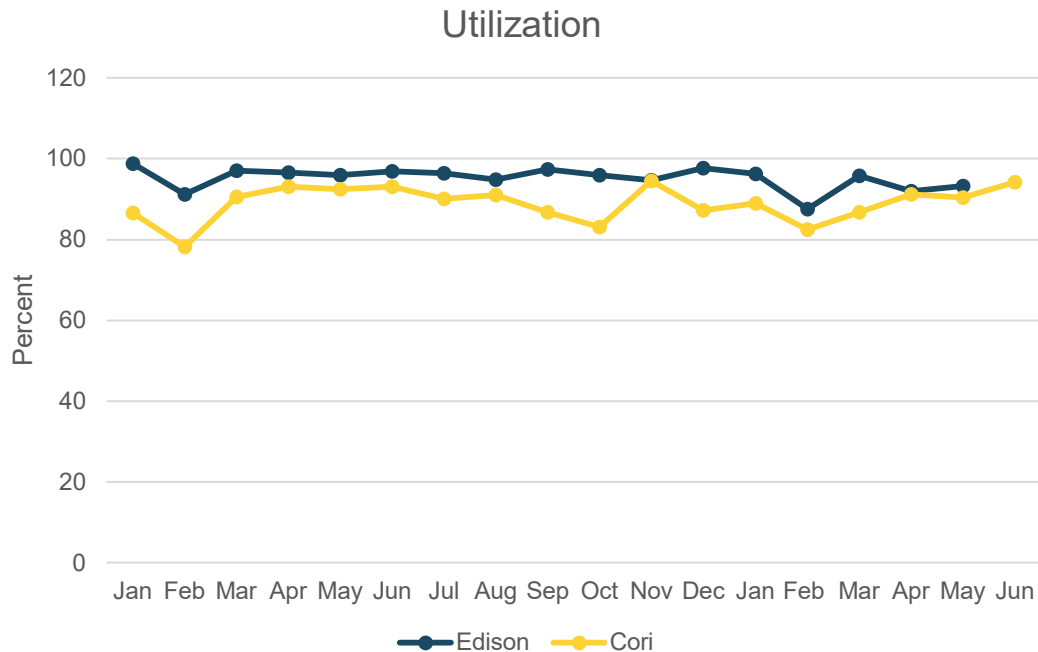
- Goal: Provide as many operational hours as possible
  - Minimize downtimes and maintenances
- How do we know how we're doing?
  - Metrics



# Utilization



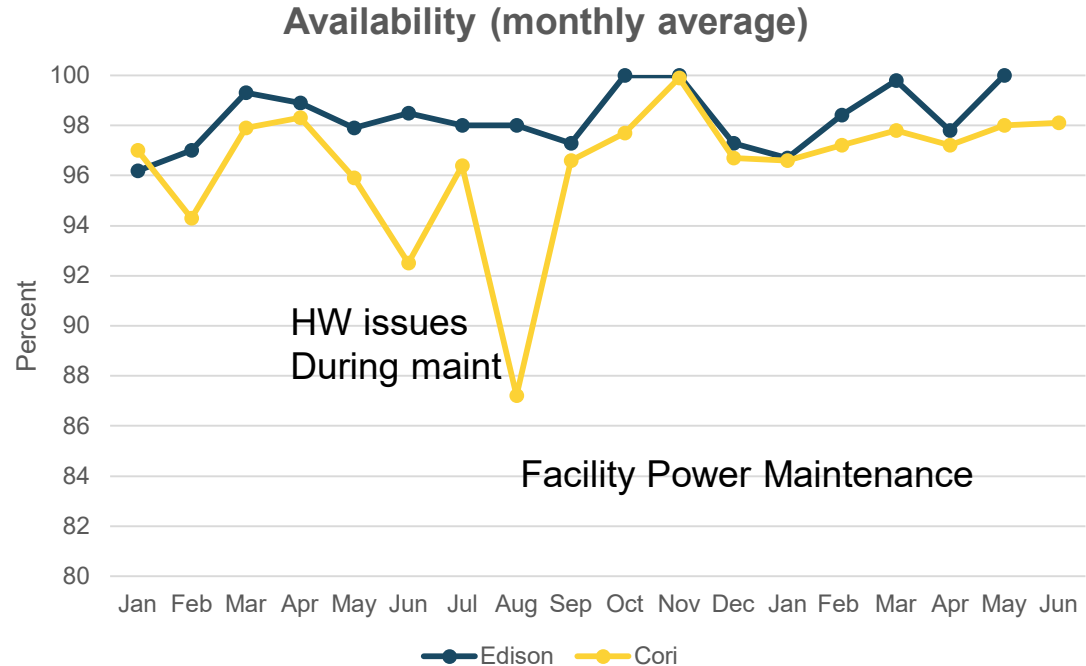
- Measures system use
- Varies from
  - Scheduling efficiency
  - Queued jobs
    - Number
    - Size
    - Length



# Availability – HPC Systems



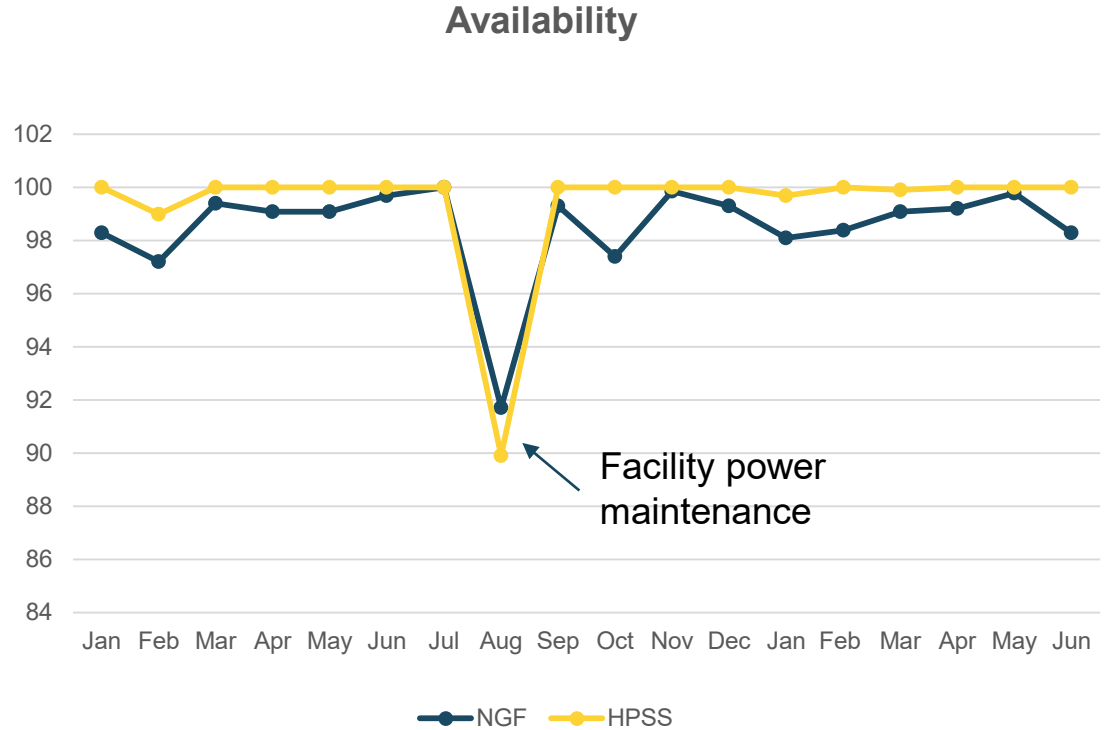
- Measures how much the system is available for user jobs (monthly avg)
- Affected by:
  - Maintenances
  - System wide outages



# Availability – Storage Systems



- Very stable systems

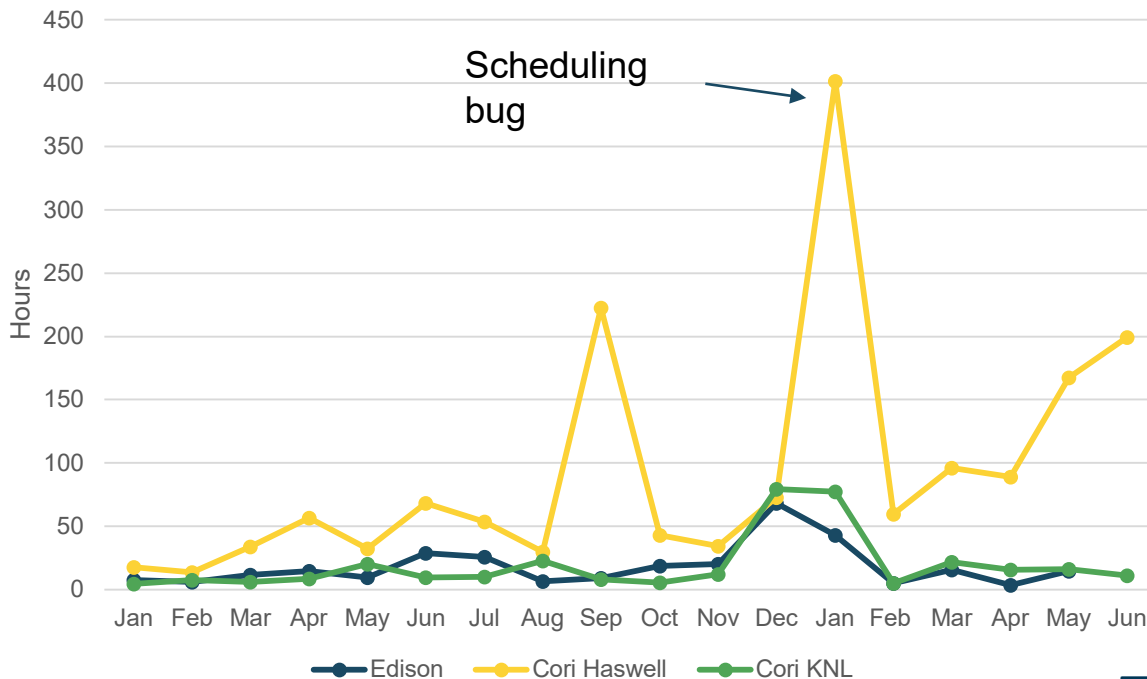


# Average Queue Wait Times



- Average time jobs wait in the queue.
- Difficult to measure
  - Some jobs run quickly
  - Job holds can affect results
- Users want to know how long THEIR job will wait

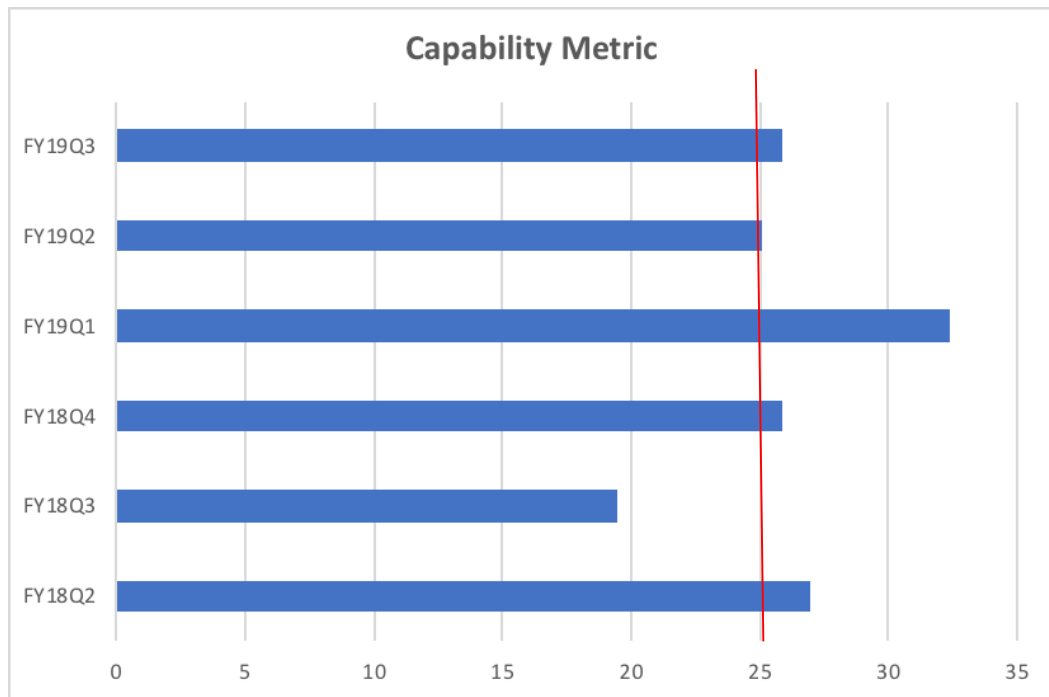
Average Queue Wait Time (monthly)



# Capability Metric



- Measures percent of the system running jobs of 1024 nodes or more.
- FY18Q3 low
  - low utilization
  - System issue causing node fallout
  - Primary user unable to run

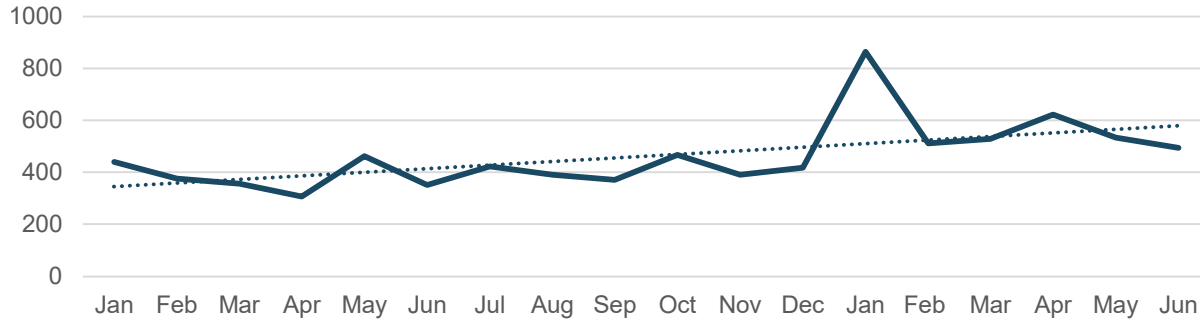




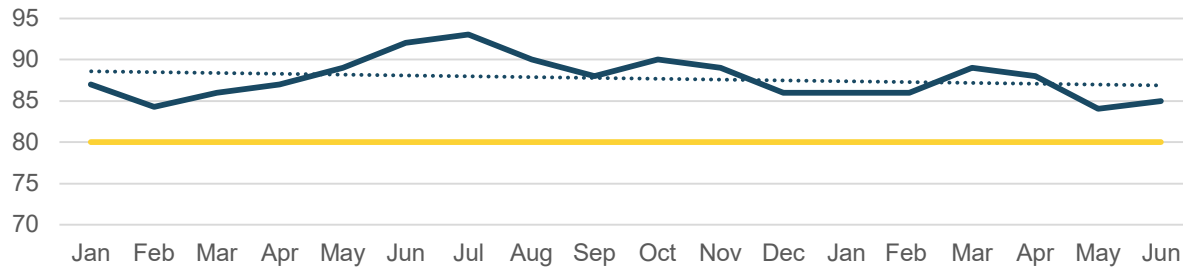
# Tickets & Consulting



### Number of New Tickets each Month # Tickets



### Consulting Ticket Resolution in 3 Days



— complete in 3 days    — Target    ..... Linear (complete in 3 days)

# Conclusion



- NERSC Is making improvements to decrease maintenance time.
- Overall uptimes and availability numbers are good.
  - Long facility maintenances or mods result in extended down times
  - A couple of these are planned this year for Perlmutter
- Queue changes
  - encourage shorter jobs which backfill better when possible.
- Work with users on more parallelism to prepare for Perlmutter
  - Reduce the job wait times on the Haswell nodes and increase the number of KNL jobs



**Thank You**