Business Intelligence & Data Analytics Program (BI/DA)
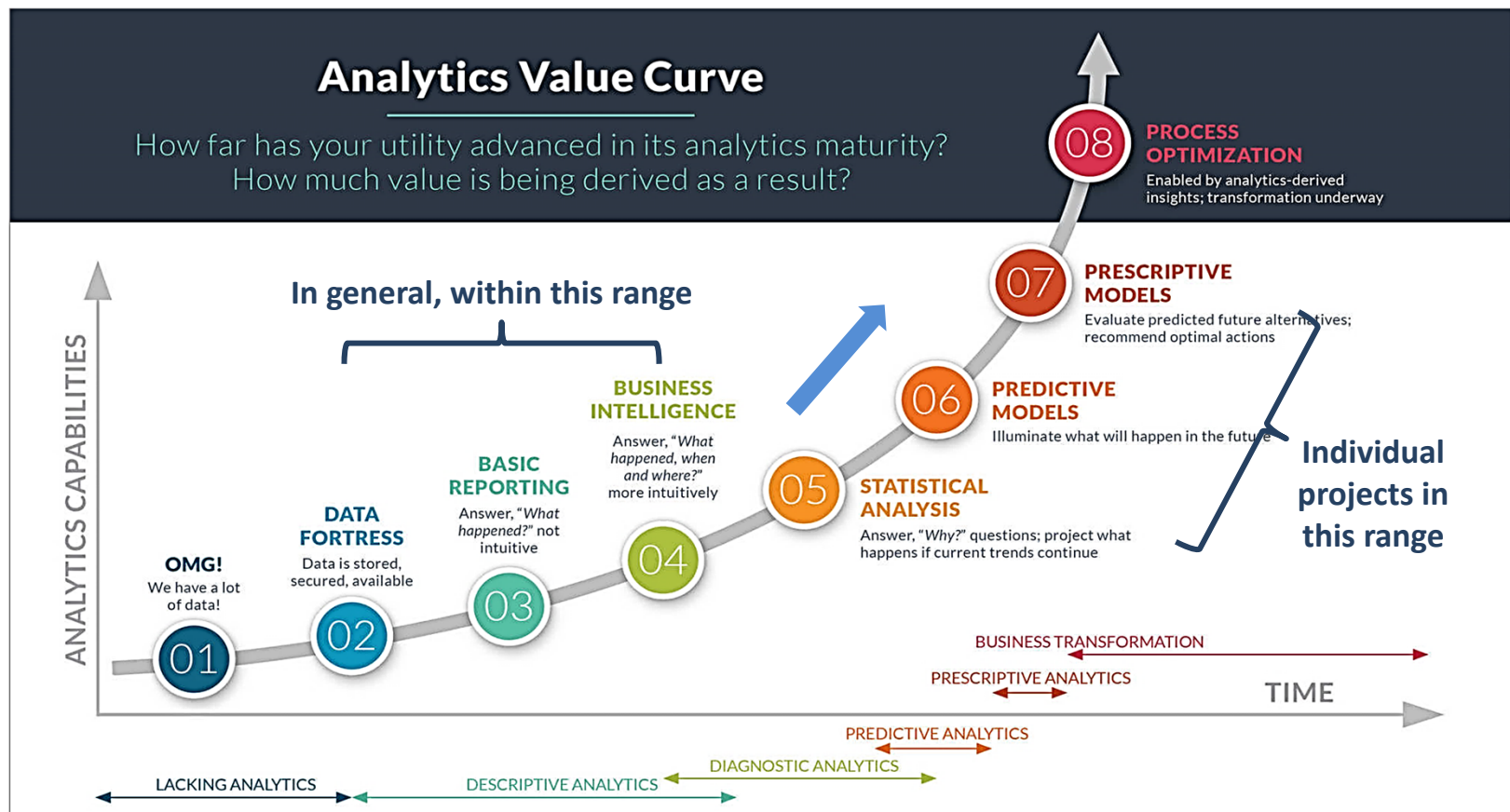
Enabling a Data Culture

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P.U.D.
CHELAN COUNTY

Agenda

- Growing our Analytics Maturity
- Examples:
    - Broadening Business Intelligence
    - Support of Independent Operations
    - River-mile Elevation Modeling
    - Predictive Analytics
    - Data-driven Action
- Continuing Forward

Our Data Analytics Opportunity

Analytics Value Curve

How far has your utility advanced in its analytics maturity?
How much value is being derived as a result?

- Areas of organization are in different spots
- In general, lots of data and working toward:
  - clear organization
  - easy access
  - broad utilization

- Individual efforts in 6-7 range
- Striving for 8 in high-value areas to support:
  - Management of operations and assets
  - Reliability
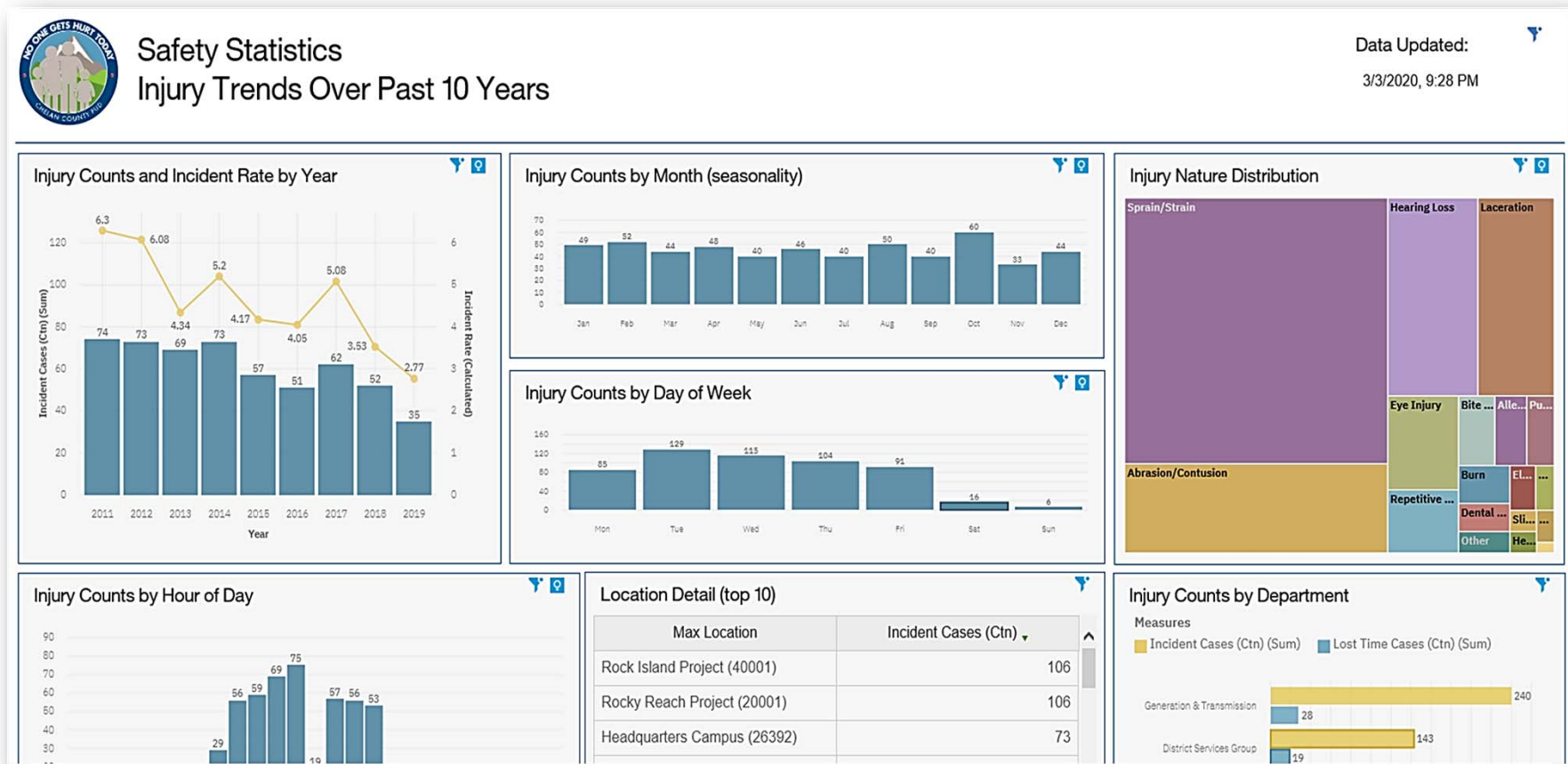 - Customer Service
  - Human Performance and Safety

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Business Intelligence & Data Analytics Program (BI/DA)

Examples

Broadening Business Intelligence
Building Reusable Data Models

- Descriptive and manual diagnostic analytics are the foundation of a data culture
- Moving from a focus on point solutions to multi-use data models

# Support of Two-Dam Independent Operations

- Descriptive analysis to grow awareness and maturity around our operational data
- Combines data from multiple systems to analyze prior day's activity
- Starting point for longer-term analysis of pre/post independent operations
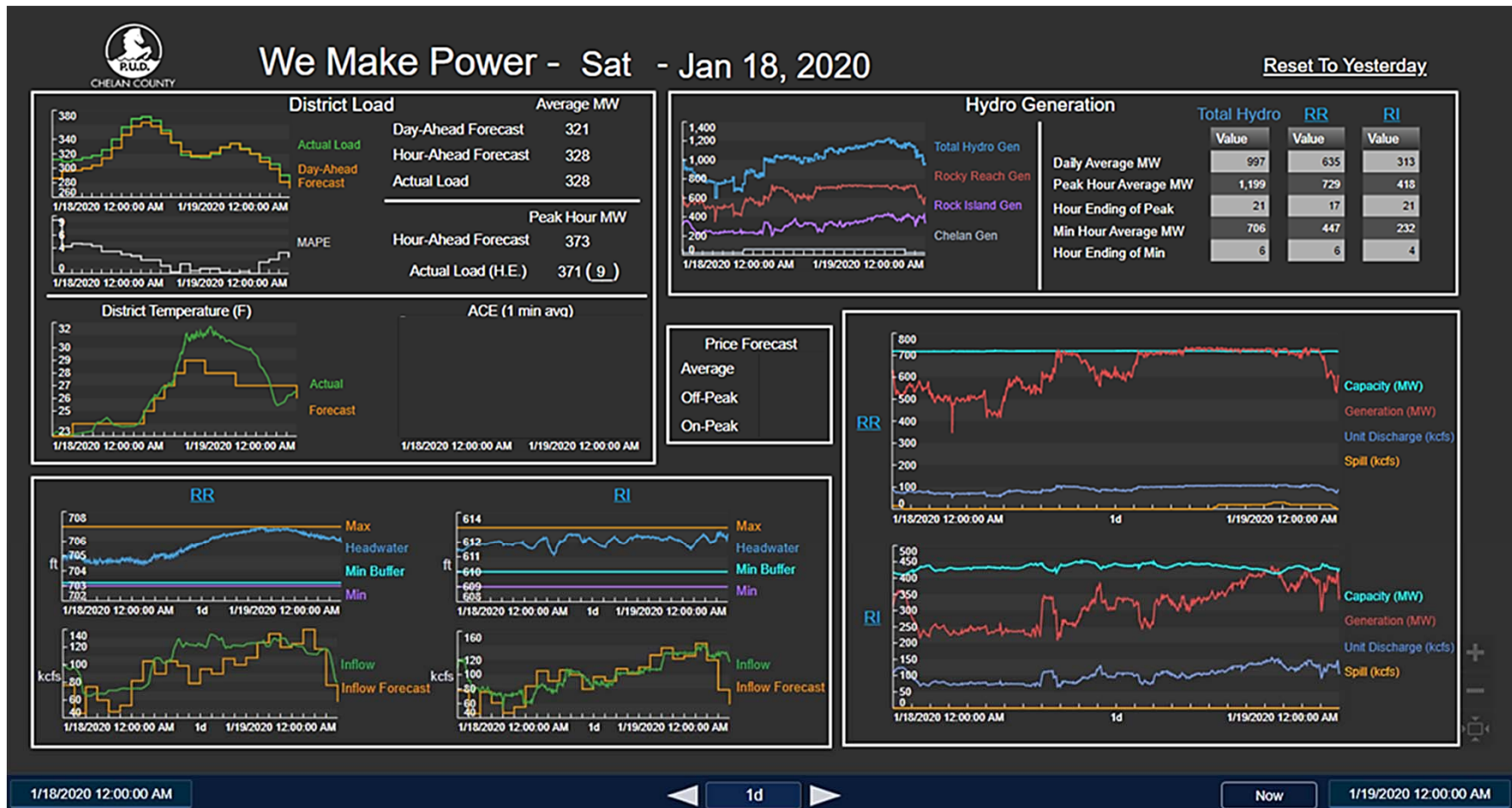
River-mile Elevation Modeling

Combines real-time sensor data with reference tables to calculate river elevation estimates

- Leverages mathematical analysis to digitize paper models
- Estimates every mile between projects
- Highlights points of interest (i.e. parks and boat launches)
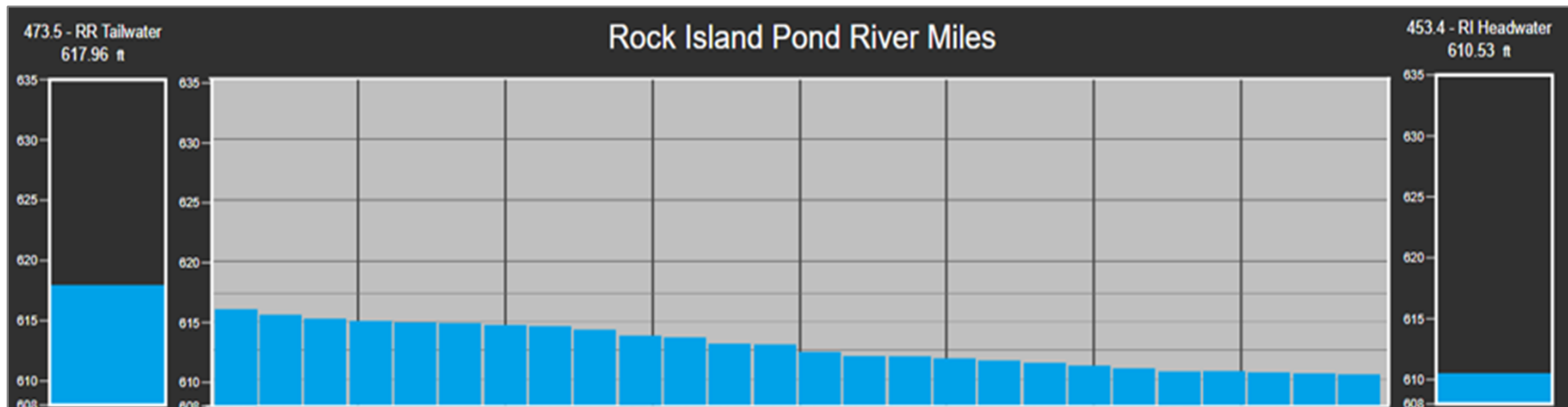
[River Mile Simulator](#)

Predictive Analytics for Stator Winding Temperature

Operationalize Predictive Model to Test Against Actuals

- Data from sensors on units
- Trained on years of data using Random Forest algorithm
- Runs every morning using yesterday's data

- Iterate on training the model with additional data and different methods to increase predictability and accuracy
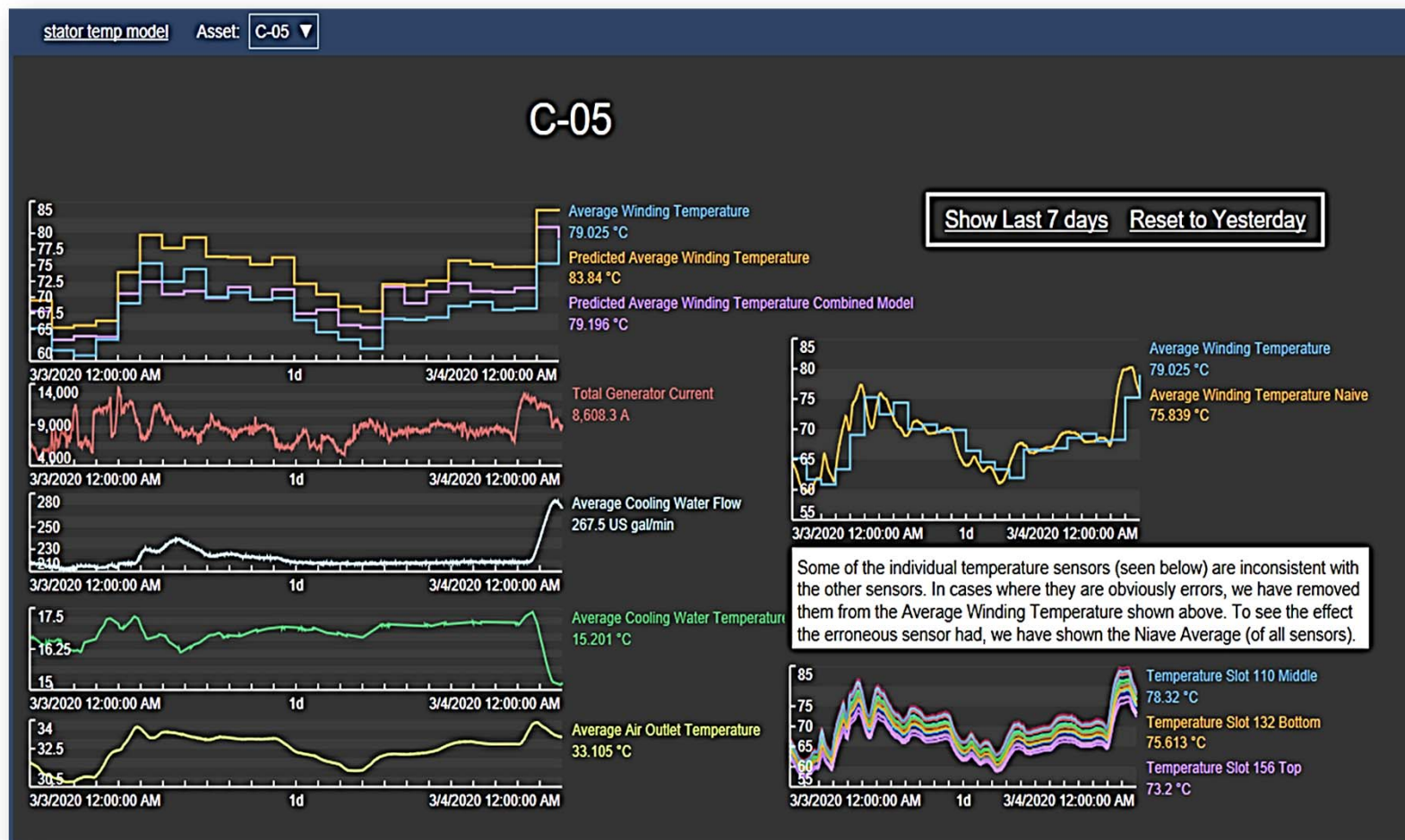
Automated Feeder Breaker Trip Notification

Simple prescriptive analysis using data to drive action

- Critical substation feeder breaker needed monitoring
- Dispatched crew every two weeks to check status
- Utilized remote sensor data to indicate when breaker tripped
- Automated notification and creation of service request in Work Management system
- Service request reviewed and crew dispatched as necessary
- Moved from time-based maintenance to condition-based maintenance, saving labor costs
- Built technical and data foundation for additional automated workflow

Continuing Forward

- Scale the insights to grow organizational maturity

- Support our Technology & Innovation Roadmap

- Stay aligned with our Mission, Vision and Values

Questions?