# GridUnity®

# DER Interconnection Study Bootcamp

## February 7th, 2022

# GridUnity | Who We Are

**Company:** GridUnity, Inc.

**Vision:** A world powered by intelligently distributed clean energy resources

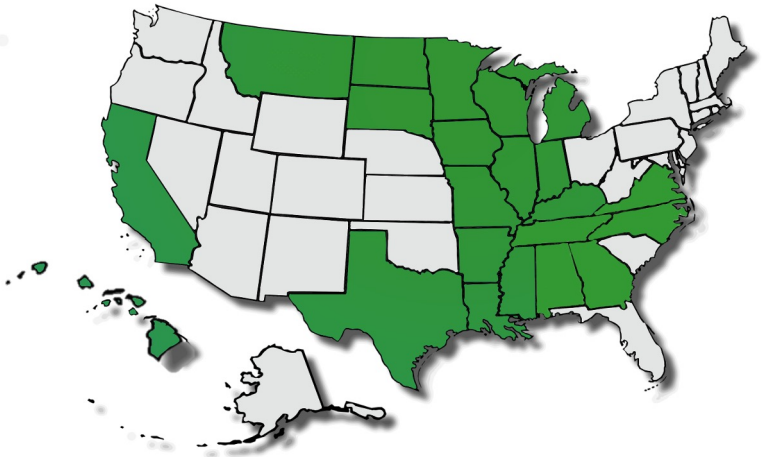
**History:** Founded 2010 - Platform v1 release Q1 2016

**Industry Leadership:** Founded the Distribution Planning Consortium (DPC) in 2018

**Solution:** An energy analytics Platform-as-a-Service company offering cloud applications and analytics for utilities, ISOs, and developers:

- Accelerates interconnection of all T&D applications
- Provides speed, standardization, and scale through rules-based automation of Interconnection processes and engineering analysis
- Offers the workflow flexibility necessary to support ongoing regulatory change
- Enables a learning model that encourages continuous data accuracy improvements, compatible with machine learning
- Drives operational efficiency, effectiveness and transparency
- Cyber Security NIST 800-171 Compliance
- Multiple years serving large utilities and independent system operators in dynamic environments

## Industry-leading Customers



## DPC *Industry-leading Utilities*

Xcel Energy · PG&E · Alabama Power · Portland General Electric · Entergy · Hawaiian Electric / Maui Electric / Hawai'i Electric Light · Duke Energy · NV Energy · SRP · Eversource · ppl Electric Utilities · Southern California Edison (An Edison International Company) · aps

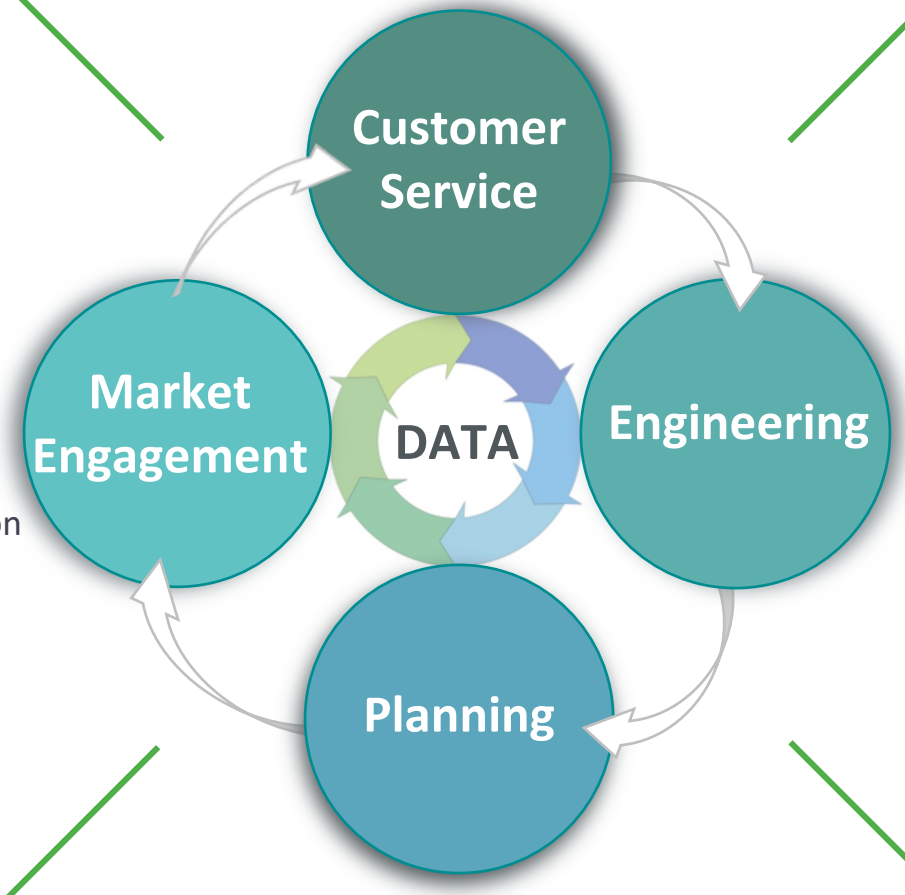
## Technology Partnerships

SAP · Eaton · Siemens (Ingenuity for life) · esri · sas · Oracle Utilities · open source · GE · IBM maximo

# GridUnity Platform Services & Solutions

## Interconnection Life Cycle Management

Customer Engagement Portal
Transmission and Distribution Applications
Integrated Project Management




## Market Engagement

Grid Needs Publishing
Proposal Evaluation Service
Program Targeting & Optimization

## Automated Electrical Engineering Analysis

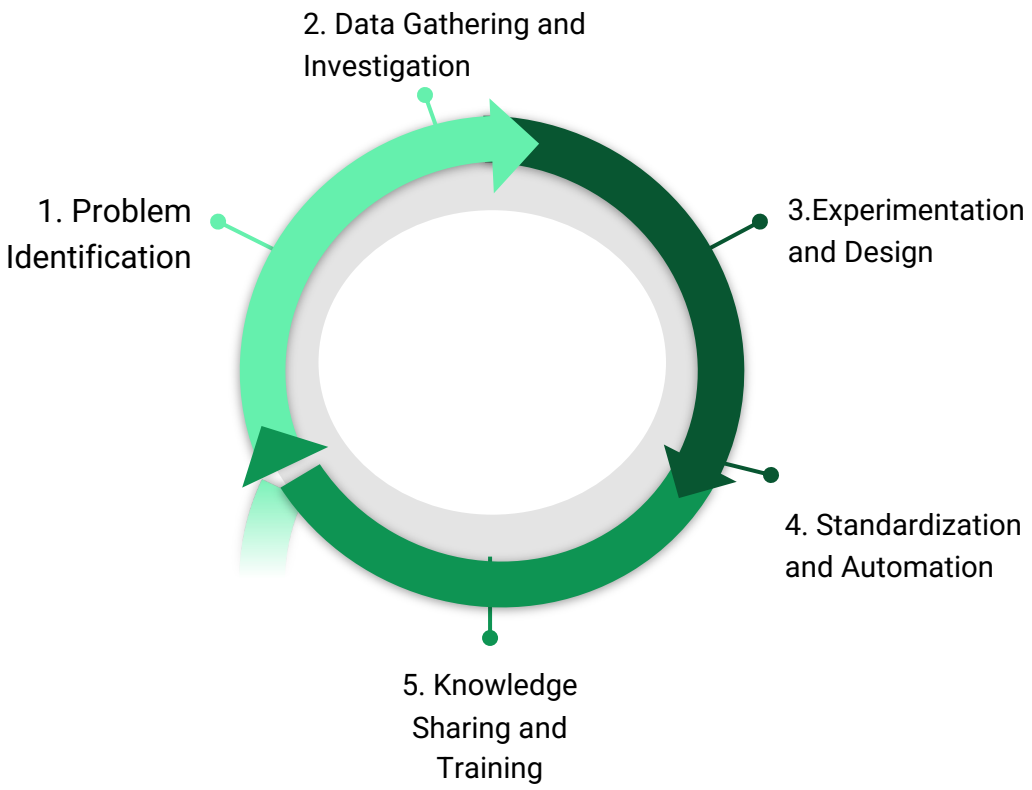
Automated Technical Screening
Grid Model Management
Hosting Capacity Analysis

## System Planning

Grid Planning
- Forecasting
- Needs Assessment
- Capital Planning

# GridUnity | The Role of Automation

## *Lifecycle of an Engineering Problem*




## *Automation is critical for:*

- Long running analysis
- High Volume
- Fast Response Times
- Frequent Refresh
- Well understood processes

*Automation never replaces engineering expertise and experimentation, it just frees up engineers to do more interesting analysis and design future automation*

# GridUnity | Integration Capacity Analysis (ICA)

## Integration Capacity Analysis (ICA) Use Case Description

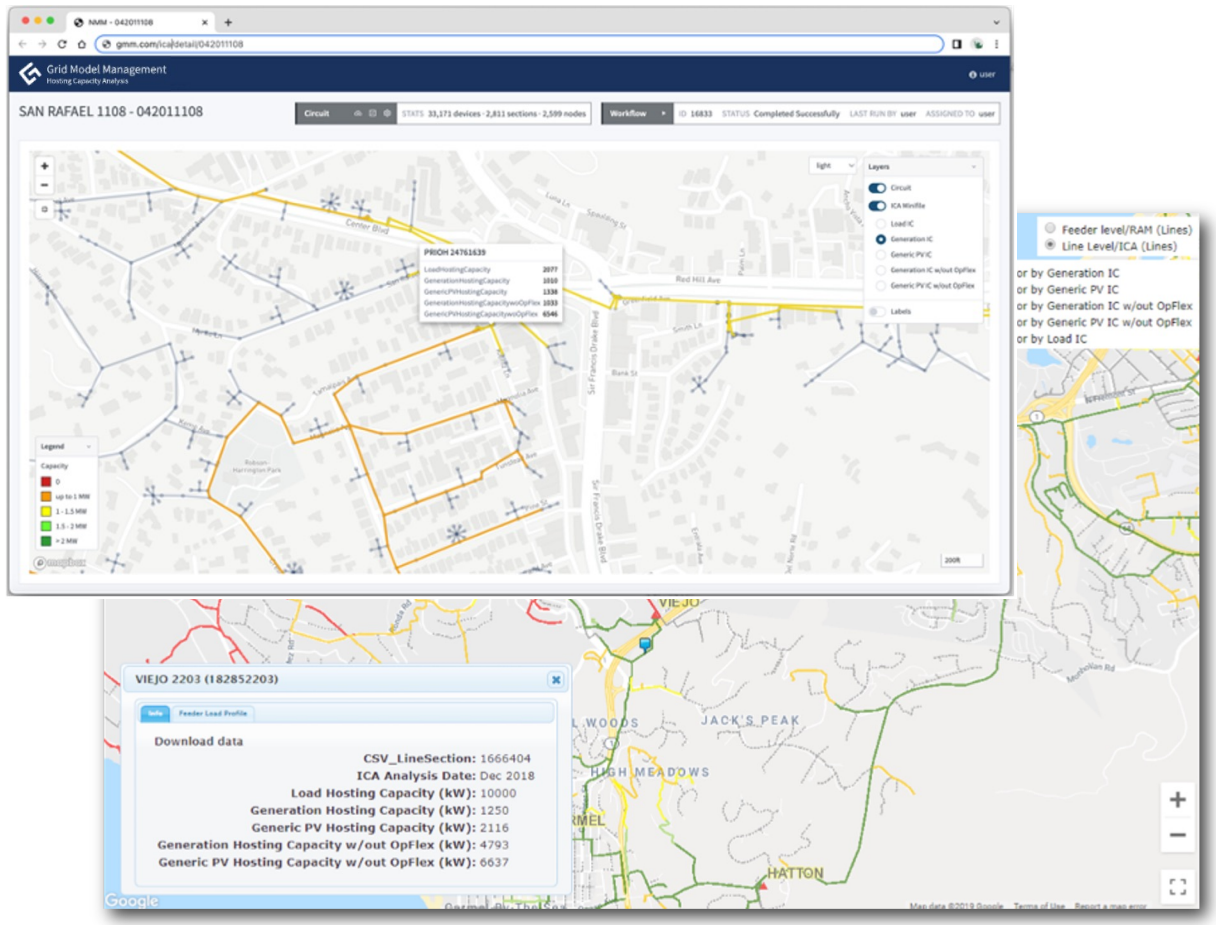
**Process**
576 hours time series w/ AMI data
Queued generation modeled

**Run Time**
Hours -> Days per study

**Volume**
100's of studies per month

**Response Time**
<30 business days (<10 if applicant is waiting)

**Refresh Interval**
3-4 months




*Sample Use Case - Hosting Capacity Analysis*

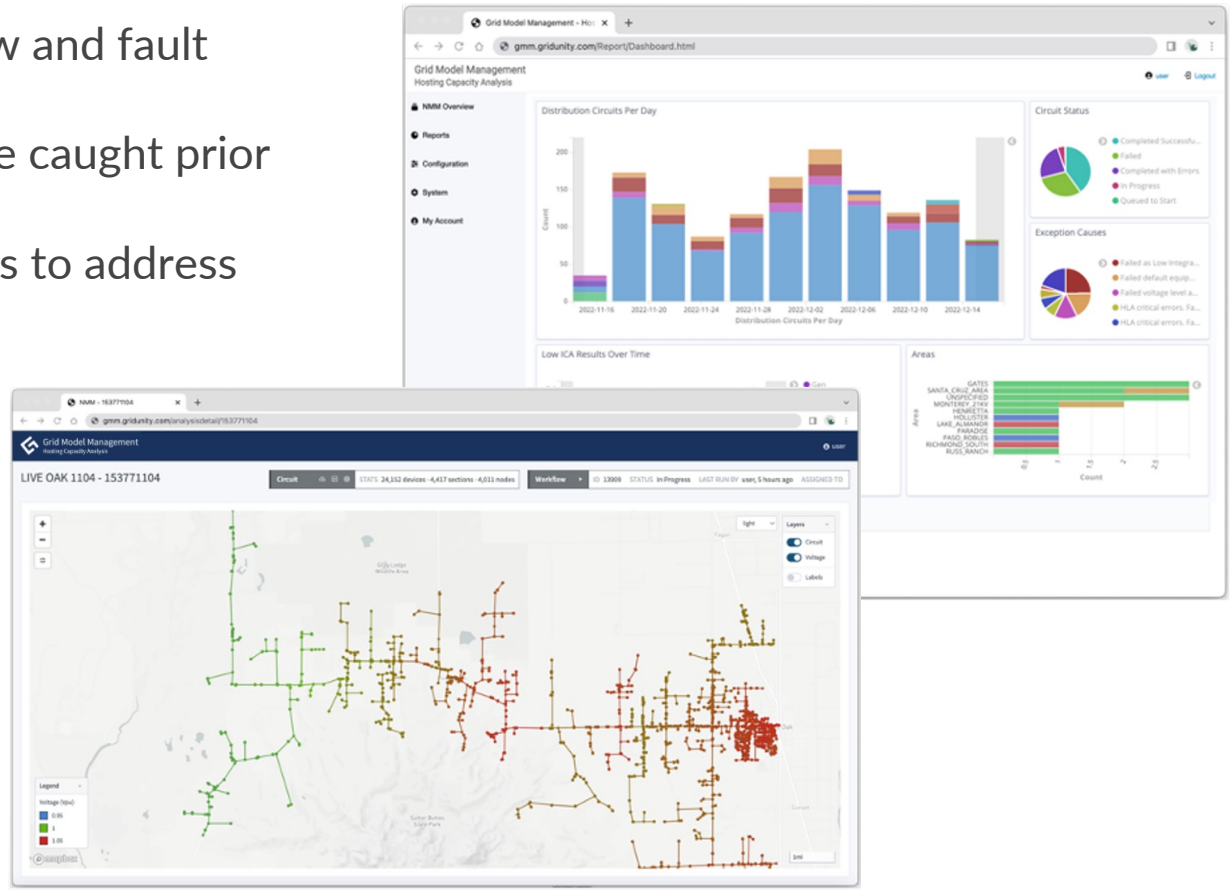
# GridUnity | Data Quality Examples

| | Description | Impact |
|---|---|---|
| Default/Unknown Equipment | Missing conductor sizes and devices ratings | Incorrect impedance values will make powerflow results less accurate. Incorrect ratings can result in overloads. |
| Incorrect Capacitor and Regulator Settings | Voltage setpoints, deadbands | High or low voltage issues |
| Incorrect Breaker and Recloser Settings | Pickups, time delays | Miscoordination or undetected reduction of reach |
| Disconnected Sections | Incorrect conductivity | Missing load |
| Unknown Phase | A single phase load or lateral | Unbalanced voltage/current |

# GridUnity | Data Quality

## Grid Model Management (GMM)

- Data quality is critical to the automation of power flow and fault analysis
- GMM performs quality checks to ensure the issues are caught prior to result publication
- Dashboards summarize issues to enable administrators to address systemic issues or patterns



# Example 12kV Radial Distribution Circuit

- 8 MW Peak Load
- 2615 kW of Generation
- 742 kW of Queued Generation
- Able to integrate up to an additional 1.6 MW generator is some locations