

# Granular Pricing and Market Price Delivery Update

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**Market Issues Working Group (MIWG)**

March 6, 2018, 10 Krey Boulevard

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# Background

Date	Working Group	Discussion points and links to materials
02-02-17	Posted	<a href="#"><u>Distributed Energy Resources Roadmap for New York's Wholesale Electricity Market</u></a>
09-29-17	Market Issues Working Group (MIWG)	<a href="#"><u>Granular Pricing &amp; Market Price Delivery</u></a>

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# Agenda

- Project Summary and Progress Update
- Changes to the Generator Names file
- Pricing Map Update
- Future Functionality

# Project Background

- **In 2017, NYISO proposed the granular pricing and market delivery concept**
  - To publish additional nodal load prices for wholesale DER participation and assist REV development opportunities
    - These additional load nodes will be used to identify intra-zonal pricing differences to encourage location specific DER development
  - To deliver a graphical map interface and API to allow for third party access and streamlined utilization of NYISO calculated nodal prices
- **NYISO shared a demo version of a granular pricing map with stakeholders in September of 2017**
  - NYISO received minimal feedback on the map's overall look, feel, and scope of functionality
  - Link to demo pricing map: <http://www.nyisopilotnodalprices.com>

# Today's Presentation Scope

- **This presentation will only address updates to the market price delivery process**
  - The NYISO will continue to work with the Joint Utilities of New York to finalize the process of defining Transmission Nodes in 2018
  - Full implementation of exposed granular load node pricing will take place only after completion of the NYISO EMS/BMS upgrades

# June 2018 Deployment

- **NYISO is replacing the demo pricing map from 2017 to add additional functionality and prepare for future granular load node exposure**
  - The new interface will be retrievable from NYISO.com with the demo website no longer supported
- **NYISO will deploy the Pricing Map with every active internal generator and “REV LBMP” within the Generator Names file in MIS**
  - Day-Ahead and Real-Time Zonal LBMP, Generator Nodes, and Ancillary Services will be within viewable tabs within the map interface
  - Mobile/Tablet functionality will be supported
- **NYISO will additionally deploy a RESTful API to programmatically retrieve prices**
  - A RESTful API is a web service design to pull data without additional software or libraries being installed

# Generator Names File

- **The NYISO plans to add the GPS location of each active internal generator in the NYCA to the Generator Names file**
  - This file will be used to populate the names and locations of each generator node on the map
  - GPS coordinates will be recorded to 6 decimal places
- **This file will be updated to coincide with the June deployment**
- **Link to Generator Names File:**
  - <http://mis.nyiso.com/public/pdf/generator/generator.pdf>

# Updated Map Mock Ups

**\*Final version of the map is subject to change from images shown today**



## Pricing Data

**Pricing Data** | Power Grid Data | Load Data | Reports & Info | Postings by Date | Maps | Charts & Graphs | Market Access Login

**Pricing Data**

- Day-Ahead Market LBMP
  - Zonal
  - Generator
  - Reference Bus
- Real-Time Market LBMP
  - Zonal
  - Generator**
- Time-Weighted/Integrate
  - Zonal
  - Generator
  - Reference Bus
- Ancillary Services
  - Real-Time
  - Day-Ahead
- Miscellaneous
  - Price Corrections
  - TSC & NTAC Rates
  - NYPA ER17-1288-000 Annual
  - NYPA Errata to ER17-1288-00
  - NYPA Response to NYAPP Dat
  - NYPA FERC Form 1 Equivalent
  - NYPA Annual Transmission Re
  - NYPA Annual Transmission Re
  - NYPA 2016 Open Meeting Not
  - NYPA NTAC Billing Units
  - LIPA Discounted TSC Rate
  - NYPA Annual ATTR Updates
  - Data Schedule 1

**Day Ahead Market Zonal LBMP**

--- LBMP \$

00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00
EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST
24.03	21.18	20.55	19.84	20.53	24.54	26.15	27.58	30.00	28.63	28.79	28.47	27.48	27.20	27.48	27.20
1.43	1.34	1.24	1.21	1.26	1.44	1.98	1.86	2.05	2.04	2.00	1.87	1.71	1.68	1.58	1.48
-4.94	-3.52	-3.96	-3.67	-3.95	-5.26	0.00	-0.65	-0.98	-2.47	-2.49	-4.68	-5.15	-4.99	-4.84	-5.23

--- Marginal Cost of Losses

00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00
EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST	EST
0.28	0.26	0.24	0.24	0.28	0.33	0.48	0.48	0.33	0.33	0.32	0.28	0.28	0.26	0.25	0.23
-0.62	-0.44	-0.50	-0.46	-0.50	-0.66	0.00	-0.08	-0.12	-0.31	-0.31	-0.59	-0.65	-0.63	-0.61	-0.66

23:22 20:90 19:91 19:25 19:88 23:27 26:92 28:62 29:55 30:59 30:10 29:88 28:59 28:34 27:46 27:12

18:56	17:23	16:09	15:66	16:10	18:51	24:65	25:64	26:06	26:13	25:68	24:28	22:87	22:70	21:93	21:38
0.28	0.26	0.24	0.24	0.28	0.33	0.48	0.48	0.33	0.33	0.32	0.28	0.28	0.26	0.25	0.23
-0.62	-0.44	-0.50	-0.46	-0.50	-0.66	0.00	-0.08	-0.12	-0.31	-0.31	-0.59	-0.65	-0.63	-0.61	-0.66

1.87 1.75 1.61 1.56 1.61 1.82 2.75 3.06 3.23 3.26 3.21 3.00 2.83 2.83 2.80 2.75

17:92	16:70	15:56	15:19	15:57	17:92	24:00	24:81	25:10	25:18	24:75	23:30	21:95	21:81	21:09	20:59
-0.19	-0.15	-0.15	-0.10	-0.12	-0.09	-0.17	-0.33	-0.59	-0.54	-0.53	-0.54	-0.46	-0.46	-0.42	-0.39
-0.46	-0.33	-0.37	-0.34	-0.36	-0.49	0.00	-0.06	-0.09	-0.23	-0.23	-0.43	-0.47	-0.46	-0.45	-0.48

**Current nodal pricing data access via CSV file download**

**OASIS shall remain the official source of energy and ancillary prices**

ⓘ These prices are not the official prices.

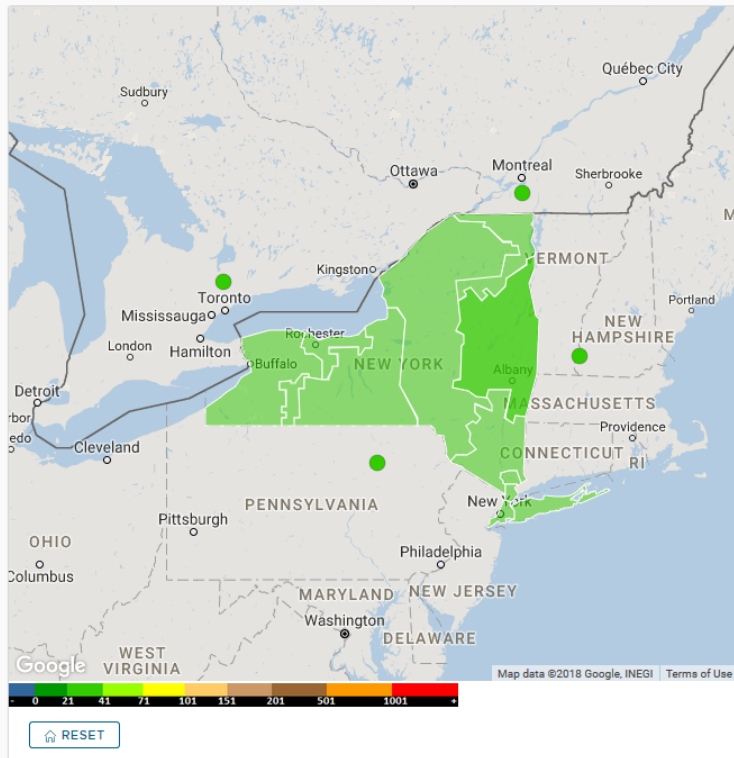
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ZONAL GENERATORS ANCILLARY

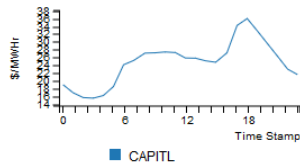
Map

API

Reports

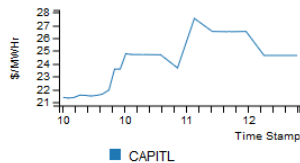


CAPITL - Day-Ahead



Updated: 2018-02-22 11:05:48

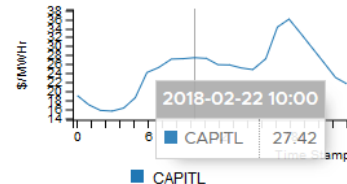
CAPITL - Real-Time



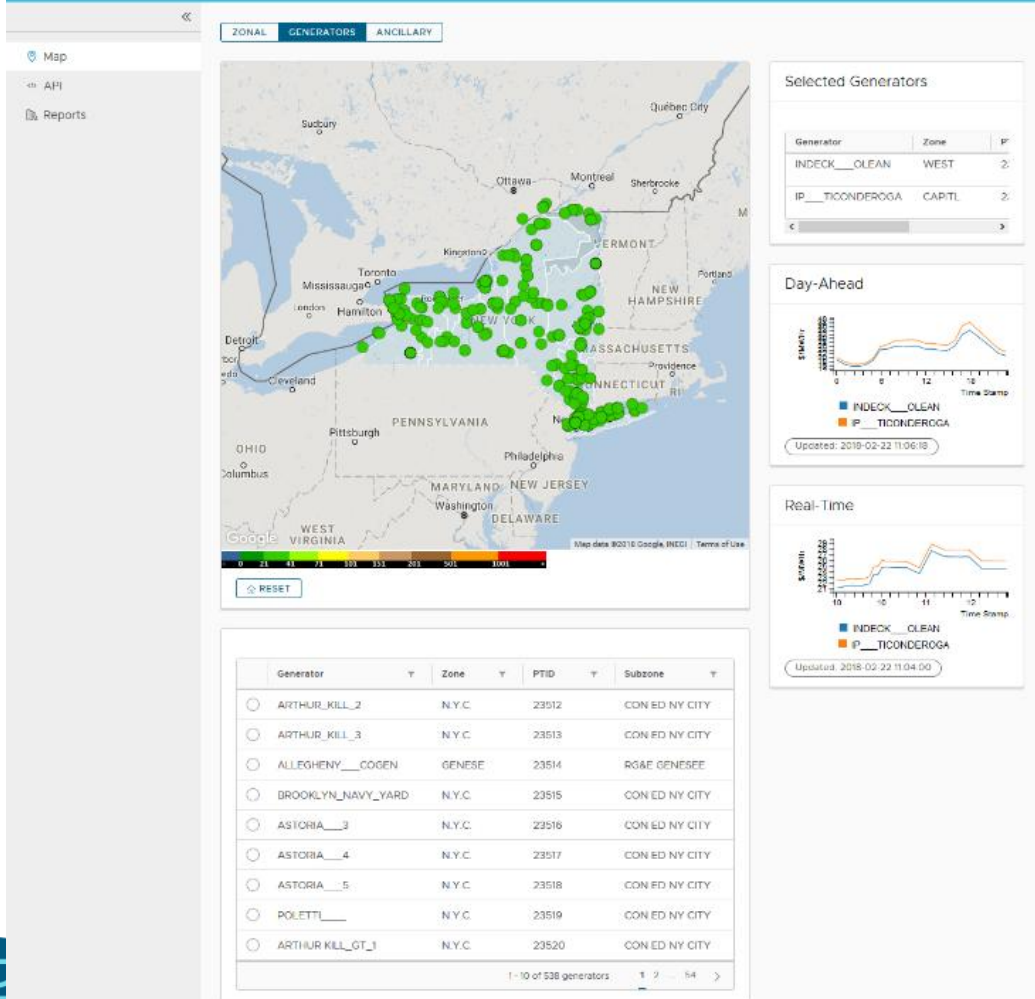
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# New Map: Zonal Prices

CAPITL - Day-Ahead

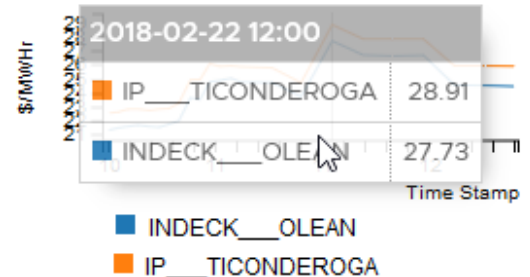


Updated: 2018-02-22 11:05:48



# New Map: Generator Node Prices

## Real-Time



Updated: 2018-02-22 11:07:41

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ZONAL GENERATORS ANCILLARY

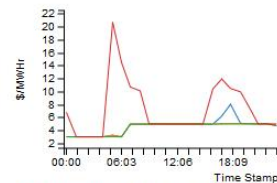
Map

API

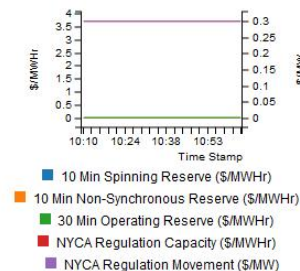
Reports



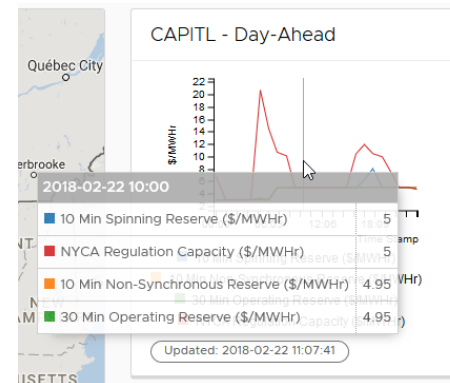
CAPITL - Day-Ahead



CAPITL - Real-Time



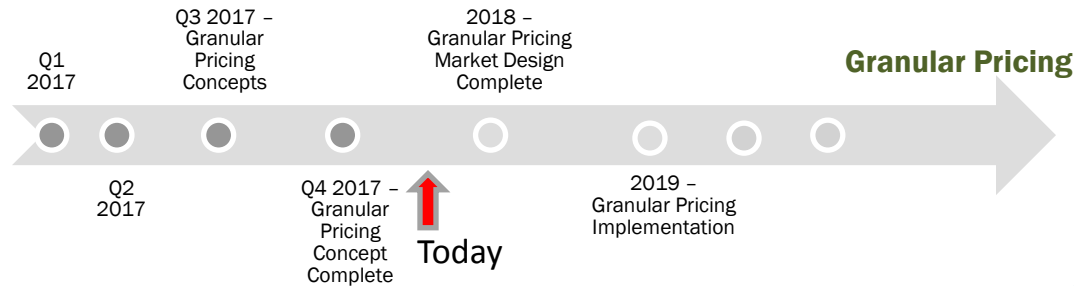
# New Map: Ancillary Services Prices



# Next Steps and The Future

# Next Steps

- Deploy Map and API in June
- Complete Granular Pricing Market Design in 2018



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# The Future

- The Pricing Map and API are examples of how the presentation and access to NYISO market data can evolve
- What other changes should the NYISO consider for the future?
  - More information graphically?
  - More information accessible via the API?
  - Other?
- Should there be a project in 2019 for further enhancements?

# Feedback?

- To ensure all feedback is captured please email additional feedback to: [DER\\_Feedback@nyiso.com](mailto:DER_Feedback@nyiso.com)



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- Planning the power system for the future
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