

# Generation Scheduling and Dispatch Issues

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# Apples and Oranges

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- Maynard Fimble was told that "you can't compare apples and oranges," but, he thought, they are both eatable, grow on trees, are about the same size, are good for you, have a peel, come in many varieties, and are approximately round in shape, thus, to his horror and guilt, he realized that he was comparing them and wondered what punishment awaited him and on whose order.

# Scheduling And Dispatching “Presumptions” in Original NYISO Market Design

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- ❑ Generators Can Run To Meet Their Schedules Under All Conditions
- ❑ Generators Can Represent All Their Costs Through The NYISO Bidding Parameters
- ❑ The NYISO Can Predict Conditions 75 Minutes Before The Hour Accurately Enough To Optimize Real Time Imports/Exports
- ❑ There Is No Need To Pay For Load Following

# Experience So Far

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- Much Of The Process So Far Has Been Applying Patches To Address Conditions That Did Not Fit The Scheduling “Presumptions”
- Examples Include:
  - Expansion of Undergeneration Deadband & Implementation Of Lagging Rules
  - BPCG On Imports
  - Real-Time GT Operation
  - Start-Up Rules
- The Patches So Far Have Been To Address Existing Unit Issues, Not To Provide Unique Rules For Potential Future Generation Sources

## Many Other Issues Have Been Identified But Haven't Been Addressed Yet

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- ❑ Ramp Rate Constrained Treatment Of Units
- ❑ Scheduling/Penalty Rules During Unit Testing
- ❑ Combined Cycle Modeling
- ❑ Need To Pay Units For Load Following
- ❑ Ability To Represent Real-Time Fuel Costs
- ❑ BPCG Treatment of Units When SRE'd By The NYISO
- ❑ BPCG During Periods Of NYISO Price Revisions

# Ramp Rate Constrained Treatment Of Units

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- ❑ NYISO's Interpretation of The Tariff Is That When A Unit Is Directed To Ramp Down and Fails To Achieve Its Ramp Rate It Should Lose Its Entire BPCG For The Interval
- ❑ It Is Unclear Why It Makes Sense To Eliminate The Entire BPCG Rather Than Only For The Amount That Exceeds The Schedule At The Ramp Rate
- ❑ Treatment Leads To Conservative Estimates Of Ramp Rate And Defensive Bidding To Avoid Likelihood Of Being Ramped Down

# Scheduling/Penalty Rules During Unit Testing

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- ❑ Originally Units Were Allowed To Run Out Of Merit During Unit Tests
- ❑ The Option Was Unilaterally Removed By The NYISO
- ❑ During Testing Units Output Is Determined By The Test Requirements, Not By A NYISO Schedule
- ❑ In Many Cases Units Cannot Accurately Predict Their Schedules During The Tests
- ❑ Forcing Units To Run To a Predefined Schedule During Tests Results In Penalties When They Fail To Meet The Schedule Or Very Conservative Schedules That They Know They Will Be Able To Meet

# Combined Cycle Modeling

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- ❑ Combined Cycle Units Are The Fastest Growing Generation Source For The NYISO
- ❑ NYISO Is Unable To Provide Schedules For Multi GT CC Configurations That Accurately Reflect The Unit Costs and Operating Parameters In The Different Configurations
- ❑ Multi GT CC Units Are Unlikely To Offer Load Following Service Until The Modeling Is Fixed – The “Economic” Schedule That Is Set Under The Current Pseudo Unit Method Is Likely To Be More Than 3% Off The True Economic Loading Point



# Need To Pay Units For Load Following

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- There Is A Cost For Units To Provide Load Following
  - Increased Operations and Maintenance Costs
  - Increased Fixed Costs for Direct Control
  - Increased Personnel Costs When On Manual Control
- This Cost Cannot Be Represented In The Current Bids Because It Is A Cost Of Moving Up And Down, Not Remaining At A Given Operating Level

# Need To Pay Units For Load Following (cont'd)

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- ❑ The Current Trend Is To Replace Units With Substantial Load Following Capability With Less Flexible Units (GTs and CCs) And Intermittent Resources The Actually Increase The Need For Load Following
- ❑ No Units With Significant Load Following Capability Have Been Added Since NYISO Start-up
- ❑ Units With Significant Load Following Capability Have Been Retired or Announced Retirements
- ❑ Previous Opposition To Paying For Load Following Is That The NYISO Could Not Define How Much They Needed
- ❑ The NYISO 15 Minute Scheduling Filing Answers That Question – The NYISO Needs All It Can Get And Needs It Sufficiently That It Cannot Run The Risk That Some Units Would Go From 5 Minute Scheduling to 15 Minute Scheduling

# Ability To Represent Real-Time Fuel Costs

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- ❑ Tariff Currently Prohibits Generators With Accepted Day Ahead Schedules From Increasing Their DAM Bids For The RT Market
- ❑ This Leaves The Generator Unable To Represent Its True Costs When It Is Required To Purchase RT Fuel At Higher Costs
- ❑ Allowing The Generator To Represent The Higher Cost Would Allow The NYISO Software To Determine Whether There Are Cheaper Alternatives
- ❑ The Generator Would Be At Risk For Buying Out Of Its DAM Obligation

# BPCG Treatment of Units When SRE'd By The NYISO

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- ❑ Units That Are SRE'd and Then Bid Into The RT Market To Assure They Run Are Losing Their BPCG
- ❑ This Is Caused By Conflicting Terms In The Tariff
- ❑ Units Need To Have Their SRE'd Energy Treated Under A Separate BPCG As If It Was A DAM Schedule and Then Have RT Deviations From That Schedule Treated As RT Energy Deliveries
- ❑ Currently This Is Being Addressed Through DAC Actions
- ❑ The Issue Needs To Be Resolved So That The Payment Rules Are Clear And So That There Is No Delay In The Payment

# BPCG During Periods Of NYISO Price Revisions

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- ❑ Many Of The NYISO Price Revisions Are For Instances Where The Models Produced The Correct Price – But On The Basis Of Incorrect Information
- ❑ In These Cases The Generators Received Operating Instructions That Were Consistent With The Incorrect Information
- ❑ When Prices Are Revised Without Specifically Providing Protections To The Generators It Results In Penalizing The Generators For Following The NYISO's Orders

# Need For A Global Review Of Scheduling And Dispatch Rules

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- The NYISO Has Previously Stated That It Wants To Address Many Of The Above Issues In The Context Of A Global Review Of Scheduling And Dispatch Rules
- Rules For Wind Resources Should Be Addressed At The Same Time

# We Must Develop Unbiased Scheduling And Dispatch Rules For All Resources

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- ❑ The NYISO Agreement Requires That The NYISO Develop Unbiased Rules
- ❑ The Cost To The System From A Unit Failing To Schedule Energy is The Same Regardless Of The Unit's Resource Type
- ❑ The Cost To The System That Results From A Unit Deviating From Its Hour Ahead or 5-minute Ahead Schedule Is The Same Regardless Of The Unit's Resource Type

# There Is No Need To Rush To Develop Special Rules For Intermittents

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- ❑ The Tariff Currently Contains A 500 MW Exemption For Wind
- ❑ There Were Less Than 50 MW Of Wind Capacity At The Beginning Of 2005
- ❑ There Will Be Around 350 MW Of Wind Capacity At The End Of 2005
- ❑ We Will Not Exceed The Current Exemption Until The Late In 2006 At The Earliest



# It is Critical To Correctly Attribute The Costs Of Wind Generation

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- ❑ Wind Is Not The Only RPS Qualified Resource
- ❑ Failing To Account For The System Costs Will Result In Inefficient Choices Between RPS Resources
- ❑ Correctly Accounting For The Costs Is The Only Protection That Wind Generation Has Against The Rules Being Revised Later

# Many Of The Scheduling And Dispatch Presumptions Need To Be Questioned

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- ❑ Many Of The Current Scheduling/Dispatch Limitations Are Tied To The RT Optimization Of Imports/Exports
- ❑ Is The NYISO Forecasting Of Conditions 75 Minutes Before The Hour Sufficiently Accurate To Develop Optimized Import/Export Decisions
  - The Proposal To Implement VRD Is An Indication That The NYISO Process Is Not Sufficiently Accurate
- ❑ The Monthly President's Reports Show Consistent Bias For The RTC That Schedules Imports/Exports
- ❑ What Is The Mean Absolute Error Of The NYISO Forecasts At Each Of The Interfaces In The Scheduling Run

# Load Following Should Be Compensated

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- ❑ Load Following Is Required To Run The System
- ❑ Units Have Costs In Providing Load Following and Should Be Paid For The Service
- ❑ Load Following Capability Is Being Reduced As New Generators Displace Older Generators With Better Following Capabilities
- ❑ Units Should Not Be Forced Into Providing Load Following Because Of Fears of Artificial Penalties
- ❑ If We Are Going To Continue To Procure Load Following Through The Use Of Artificial Penalties Then The Artificial Penalties Should Be Applied To All New Resources So That The Risk Of Those Penalties Can Be Included In The Decision To On Whether Or Not To Build

# Payments/Penalties Need To Represent Benefits/Costs To The System

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- ❑ Should Their Be An Undergeneration Charge For Generators
- ❑ Should Generators Be Paid For Excess Generation
- ❑ If We Are Going To Have Penalties, Is A 3% Deadband Too Tight
- ❑ Is It Reasonable To Pay Dispatchable Generators The Same Payment As Generators That Will Not Follow A Schedule When The Dispatchable Generators Are Providing A Higher Value Product

# We Need To Review The RT Economic Evaluation Of Import/Export Schedules

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- ❑ The NYISO's Interest In VRD Highlighted That The Current System Is Flawed
- ❑ The Payment Policy Of Providing A BPCG For Imports And Not Exports Creates A Biased System
- ❑ Is It Possible To Economically Schedule Import/Export Transactions In The RT Without A Third Settlement
- ❑ How Would A Third Settlement Work

# PJM & ISO-NE Scheduling/Dispatch Rules

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- Generators Required To Give Notice Before Starting
- All Generators May Self Schedule Incremental Output – No BPCG for Self Scheduled Generation
- Generators Expected To Keep Operators Apprised Of Their Intended Operating Level
- Generators Paid For Full Output No Penalties For Undergeneration
- Payment For Load Following Is Part of PJM's RPM Filing At FERC

# Process From Here

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- We Need To Set Up A Timeline For The Review
- We Need To Provide For Market Participant Input To The Process