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# **Dominion Energy Solution Options**

Electric Gas Coordination Senior Task Force

August 15, 2022

# Dominion Energy's November 2021 Presentation

## "Identified Issues"

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- Acknowledged a continued electric and gas market misalignment.
  - Timing of unit offers/DA awards vs. gas market settlement.
  - Discourages fuel procurement when most needed.
  
- Potential PJM economic dispatch deficiencies associated with fuel limitations.
  
- Noted increased gas-fired generation inflexibility due to current and future role of intermittent generation .
  
- PJM reliability planning to better reflect pipeline and gas market realities.

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- ✓ Assumes existing PJM Tariff, economic and reliability modeling.
- ✓ Acknowledges generators' derate and forced outage options if day ahead or real-time PJM price signals do not adequately consider fuel costs and/or restrictions.

## Two Separate Proposals:

- *Option 1: Create a process to improve PJM's daily situational awareness through evaluations, tracking, analysis of fuel supply and generator fuel costs in dispatch models.*
- *Option 2: Create an option for resources owners to elect a multi-day offer for weekends and holidays.*

# Dominion Energy Solution Options

## Option 1

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***Option 1: Creates a multi-step process to improve PJM's daily situational awareness through evaluations, tracking, analysis of fuel supply and generator fuel costs in dispatch models.***

### Step 1: Quantify Fuel Sourcing for DA Awards

- Generators upload gas noms, projected sourcing and approved burn profiles.
- PJM to
  - document if DA fuel plan defies pipeline constraints, OFOs or tariff provisions
  - evaluate ratio of pipe nominations by cycle (reliance on ID2, ID3?)
  - evaluate aggregated DA fueling plan and review w/pipeline
  - evaluate (make public) aggregate impact of RT dispatch on fuel plan.

### Step 2: Quantify, & Make Explicit, Reserve Fuel Sourcing Assumptions

- Quantify onsite & pipe source back-up fueling capabilities (vols, replenish sch).
- Determine potential need (load/intermittent generation/interface forecast errors, N-1 contingencies, etc.) **by hour** and compare to known fueling capabilities.
- Evaluate (make public) overall reliability of reserve fueling plan & review w/ pipeline.

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## Option 1

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### Step 3: Compare Energy Market Signals vs. Fuel Costs for Fueling Planning Consistency

- Determine if the market signal (DA or RT) provide sufficient incentive to procure fuel consistent with existing pipeline Tariff requirements.
- Evaluate market signal on backup fuel consumption.
- Evaluate generator credit/cash flow implications during extreme events.

### Step 4: Evaluate Performance After Periods of Stress

- ACE performance (# & length of excursions).
- Quantify amount & type of backup fuel consumed.
- Make evaluations public.

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## Option 1- Benefits for Consideration

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***Option 1: Creates a multi-step process to improve PJM's daily situational awareness through evaluations, tracking, analysis of fuel supply and generator fuel costs in dispatch models.***

- Simple to implement*
- Provides PJM greater visibility of fuel procured by generators to meet energy market obligations.*
- Increases transparency for PJM and market participants of available reserves in aggregate.*
- Establishes clear procedures to assess status of fuel availability.*
- Requires continuous evaluation of fuel status during severe events.*
- Other considerations?*

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## Potential Subsequent Steps for Option 1

### □ Account for Gas Fueling Constraints in Gen Dispatch & Reserve Calculation

- If DA fueling plan is deemed unreliable, implement solutions:
  - If too much reliance on ID2/ID3 nomination cycles, consider awarding additional MW covered by pipeline timely nomination cycle (e.g., DA).
- Add fueling constraints to PJM's reliability (re-offer) run.

### □ Account for Fueling Constraints in RT Dispatch Price Signal

- Additional economic considerations applied if current LMP would cause in-place fuel plans to become unreliable.
  - Ex: If LMPs send unit to eco min/max in violation of pipeline imbalance parameters, unit must remain at planned levels.
  - Ex: If system emergency req unit to raise fuel consumption or come online, implement fuel reserve contingency as determined in step 2 above.

Note, these subsequent steps are action-based and would require further consideration and input from PJM and its stakeholders.

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## Option 2

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### ***Option 2: Create an option for resources owners to elect a multi-day offer for weekends and holidays.***

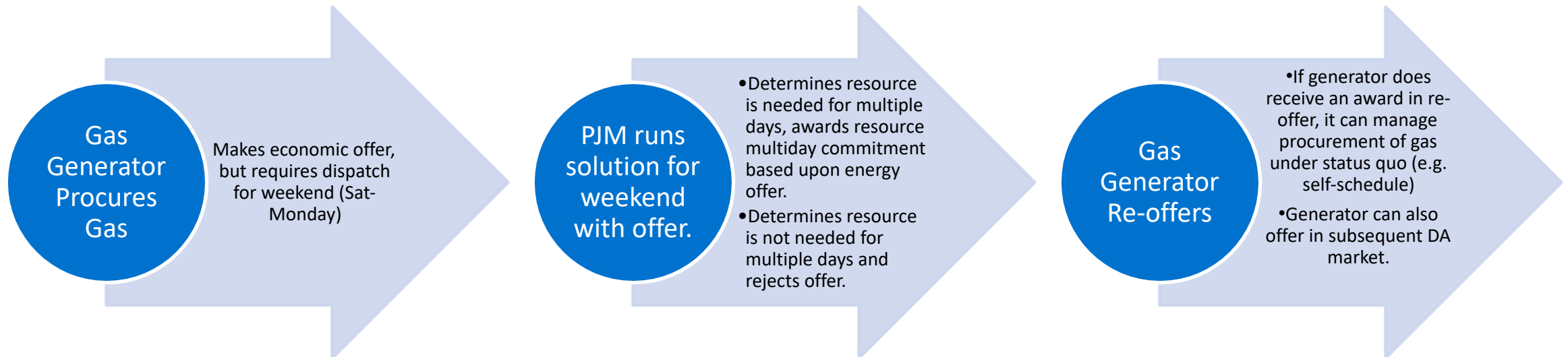
- Create voluntary option for any generation resource to offer a multi-day offer for weekends and holidays.*
- If Generation Resource does not receive a multi-day ahead award for duration of weekend or holiday, then it can re-offer in the Generation Rebidding Period.*
- If the Generation Resource is not dispatched in reoffer period, it can still elect to self-schedule or re-offer in the subsequent Day-Ahead offer windows.*
- Generation still wears risk of not clearing economically for multiple days and retains status quo to manage risk (e.g. Must run, sell gas, pipeline imbalance).*



# Dominion Energy Solution Options

## Option 2

***Option 2: Create an option for resources owners to elect a multi-day offer for weekends and holidays.***



# Dominion Energy Solution Options

## Option 2- Benefits for consideration

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### ***Option 2: Create an option for resources owners to elect a multi-day offer for weekends and holidays.***

- Benefits Generation Owner by providing one more option to use when making energy offers for weekends and holidays.*
- Increases Generation Owner ability to manage risk of buying multiple days of gas.*
- All generation can elect to offer in for a multi-day commitment.*
- Market Solution*
- Does not transfer risk to other market participants.*
- Are there any market power considerations?*
- Easily implemented?*