Gas/Electric Harmonization Forum

Scheduling and Confirmation Process

Presented by:

NAESB Wholesale Gas Quadrant Pipeline Segment

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Introduction

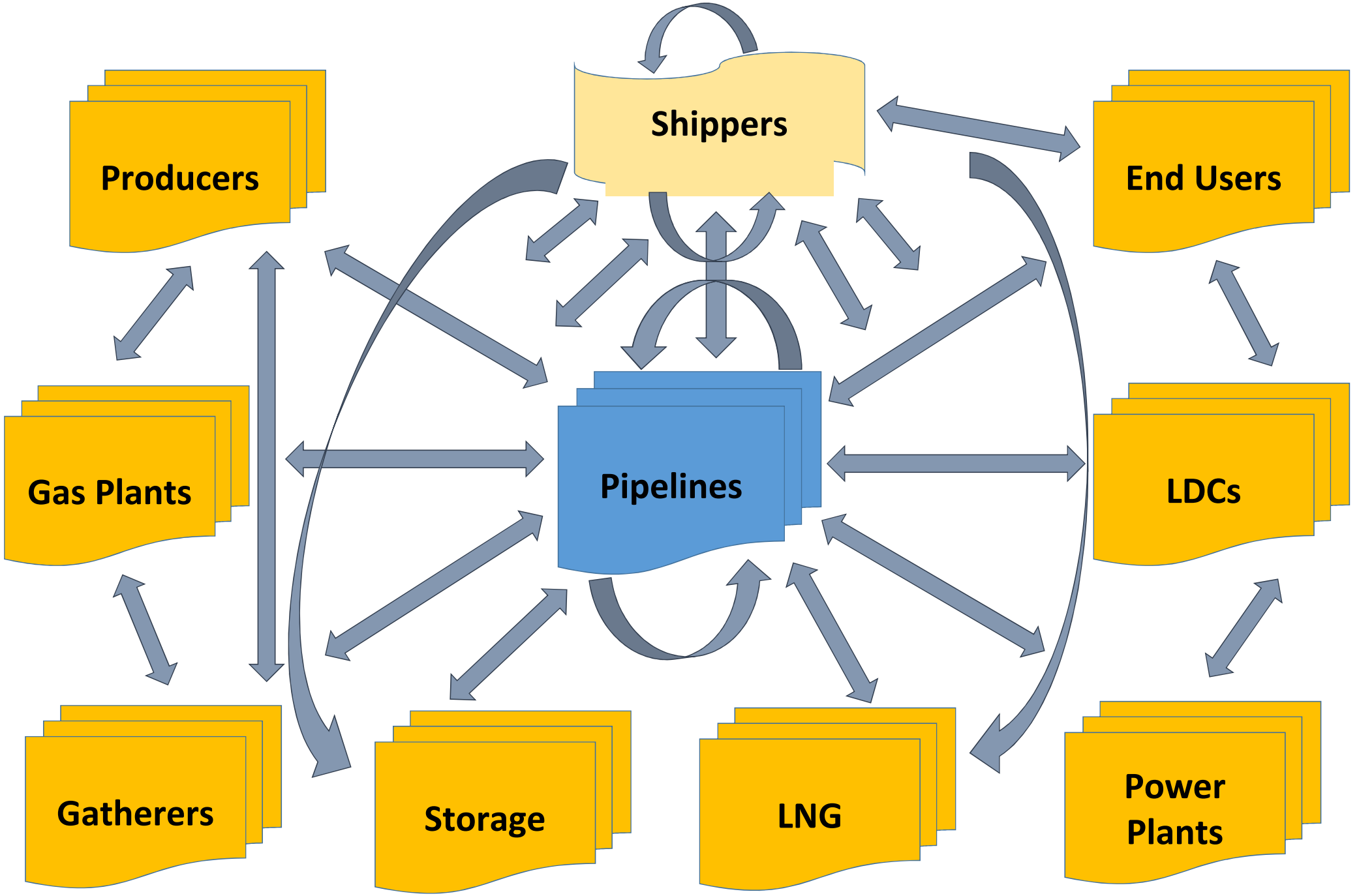
The statements made in this pipeline presentation generally apply to the U.S. interstate natural gas pipeline industry and may, to a lesser or greater extent, apply to individual pipelines depending on their unique set of assets and services. This pipeline presentation is intended to educate the broader energy industry about what pipelines do and the challenges that will be faced in the event of additional changes to the NAESB nomination, confirmation, and scheduling processes.

Introduction

This Pipeline Segment presentation is intended to provide:

- **A broad understanding of the complex nature of the communications required to effectively complete the Scheduling, Balancing, and Confirmation processes, including any associated details and their state of automation.**
- **An explanation of the "Art of Scheduling," including many of the scheduling variables handled by Pipelines as part of the Scheduling process in order to maximize the scheduling of Shipper Nominations and provide for the efficient utilization of Pipeline capacity.**
- **Industry challenges of additional automation.**
- **A summary and final thoughts.**
- **The definitions for key terms used throughout the presentation.**

Complex Coordination

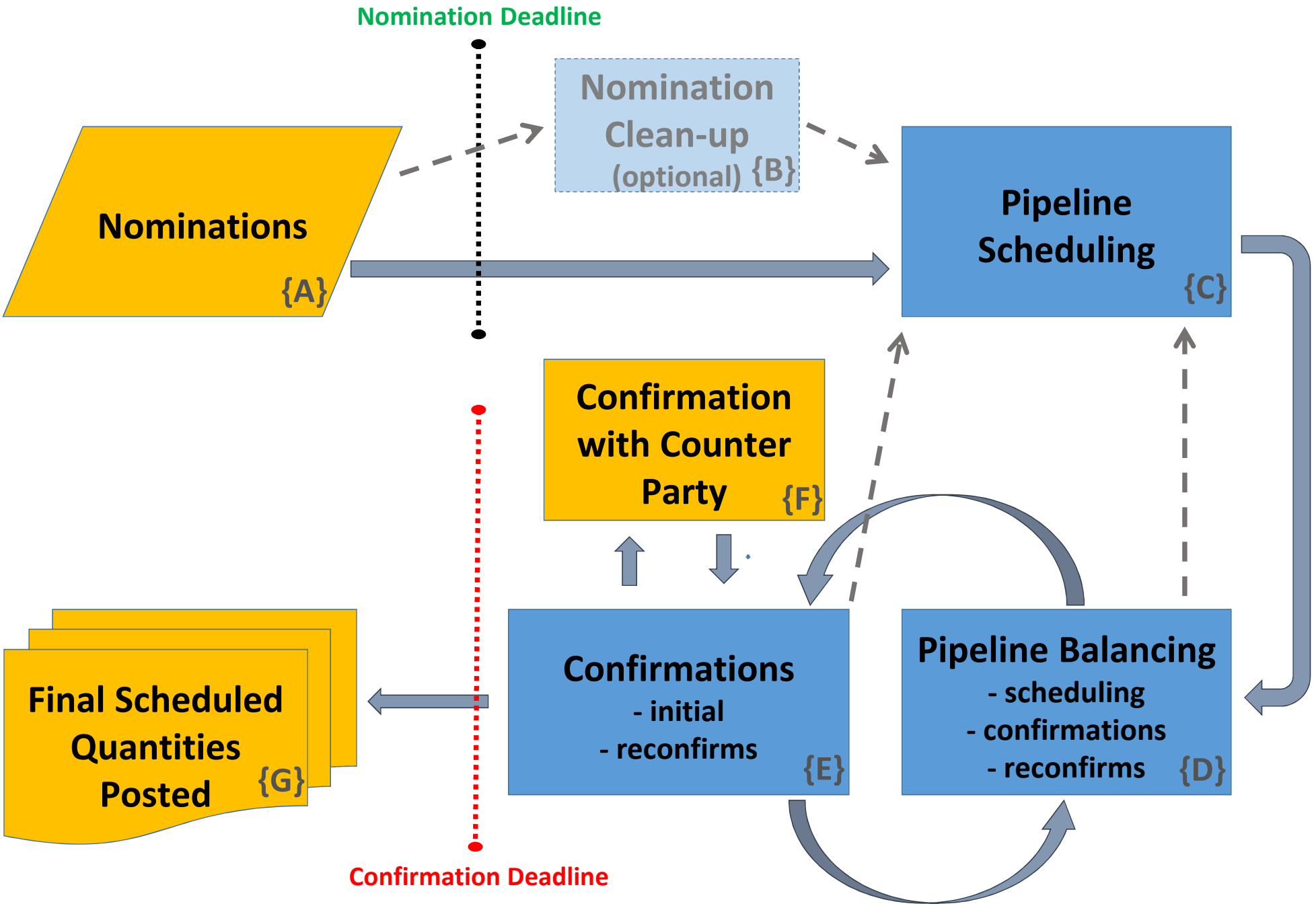


Defined Terms

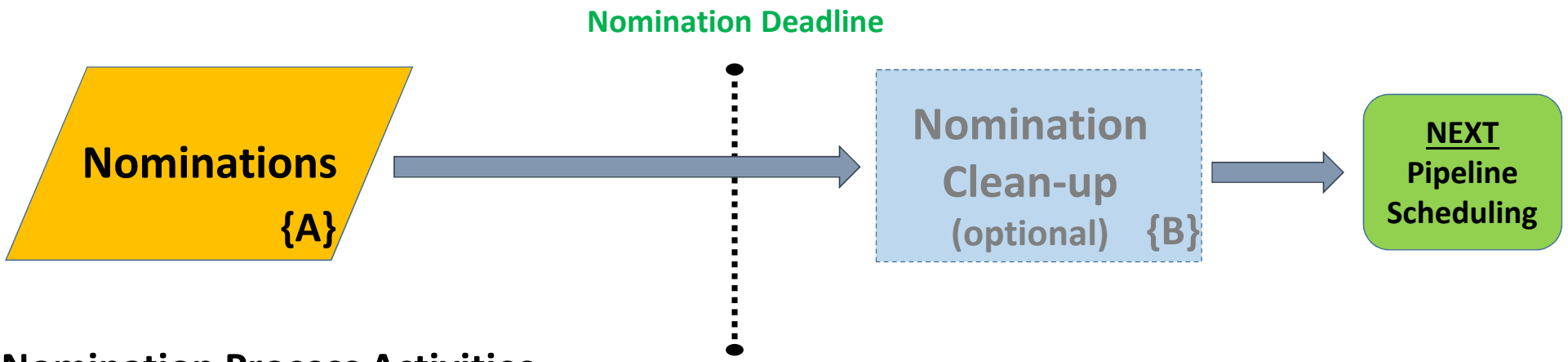
Definitions for the following terms are included at the end of the presentation for reference:

- **Nomination**
- **Confirmation**
- **Explicit Confirmation**
- **Confirmation by Exception (CBE)**
- **Scheduling**
- **Pipeline Balancing**
- **Elapsed Prorated Scheduled Quantity (EPSQ)**
- **Scheduled Quantity**
- **Electronic Bulletin Board (EBB)**
- **Electronic Data Interchange (EDI)**
- **Flat File (FF)**

Pipeline Scheduling/Confirmation Process



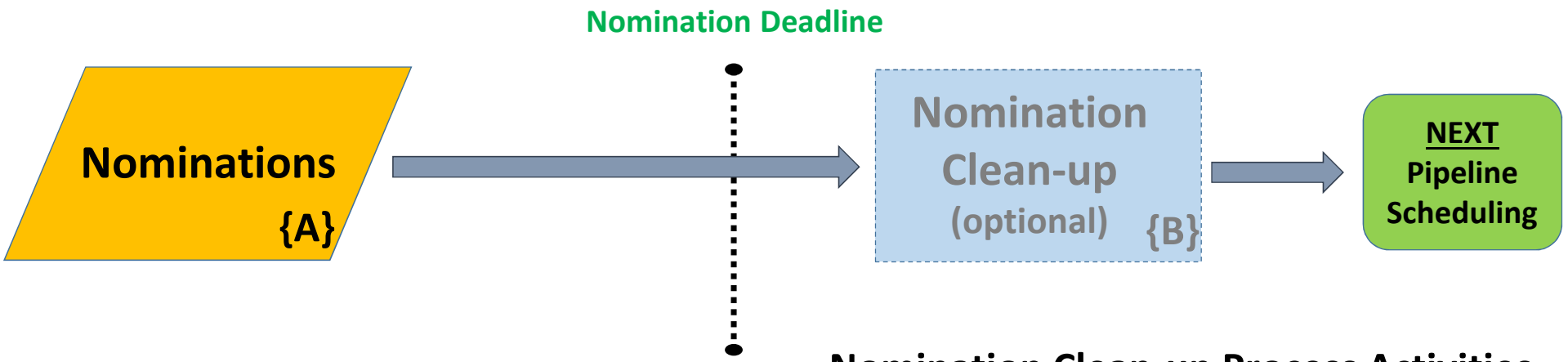
Nomination



Nomination Process Activities

Process Type		Process Activity
Shipper	**Pipeline**	
Manual	**Automated**	Shipper enters Nomination via Pipeline's online Customer Activities Website (EBB).
Mixed	**Automated**	Shipper sends Nomination via EDI Nomination to Pipeline's system (EDI).
Mixed	**Automated**	Shipper sends Nomination via flat file upload to Pipeline's system – optional (FF).
Manual	**Automated**	Shipper makes Nomination adjustments via EBB.
n/a	**Automated**	Nomination Deadline

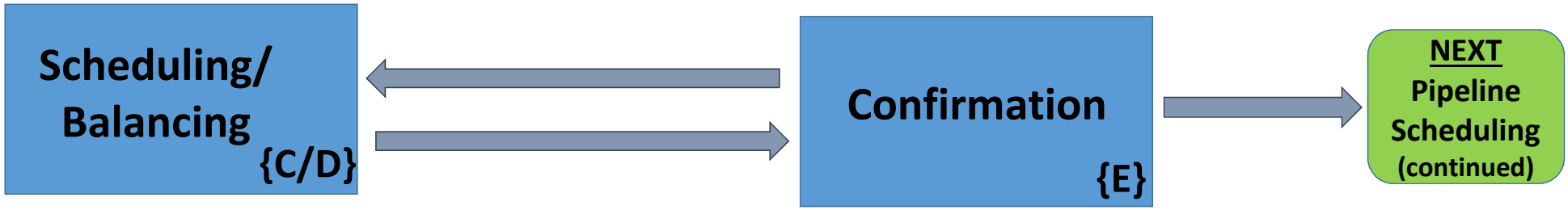
Nomination Clean-up



Nomination Clean-up Process Activities

Process Type		Process Activity
Shipper	Pipeline	
n/a	Manual	Optional internal Pipeline process to fix obvious Nomination errors, such as buy/sell mismatches to wrong party or contract, etc.

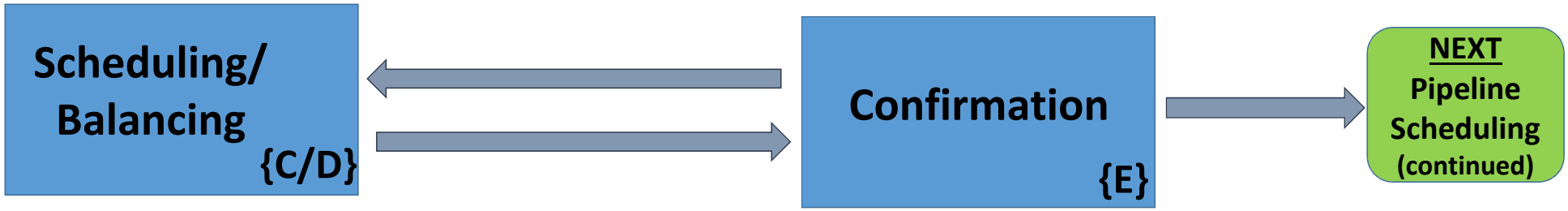
Scheduling/Balancing



Scheduling/Balancing Process Activities

Process Type		Process Activity
Shipper	Pipeline	
n/a	Mixed	Pipeline comparison of Nominations to capacities (points/segments/ storage).
n/a	Mixed	Pipeline determination of where reductions are necessary ("Art of Scheduling") and implementation of reductions, including applying bumping rules.
n/a	Mixed	Pipeline Balancing performed using supplied ranks.

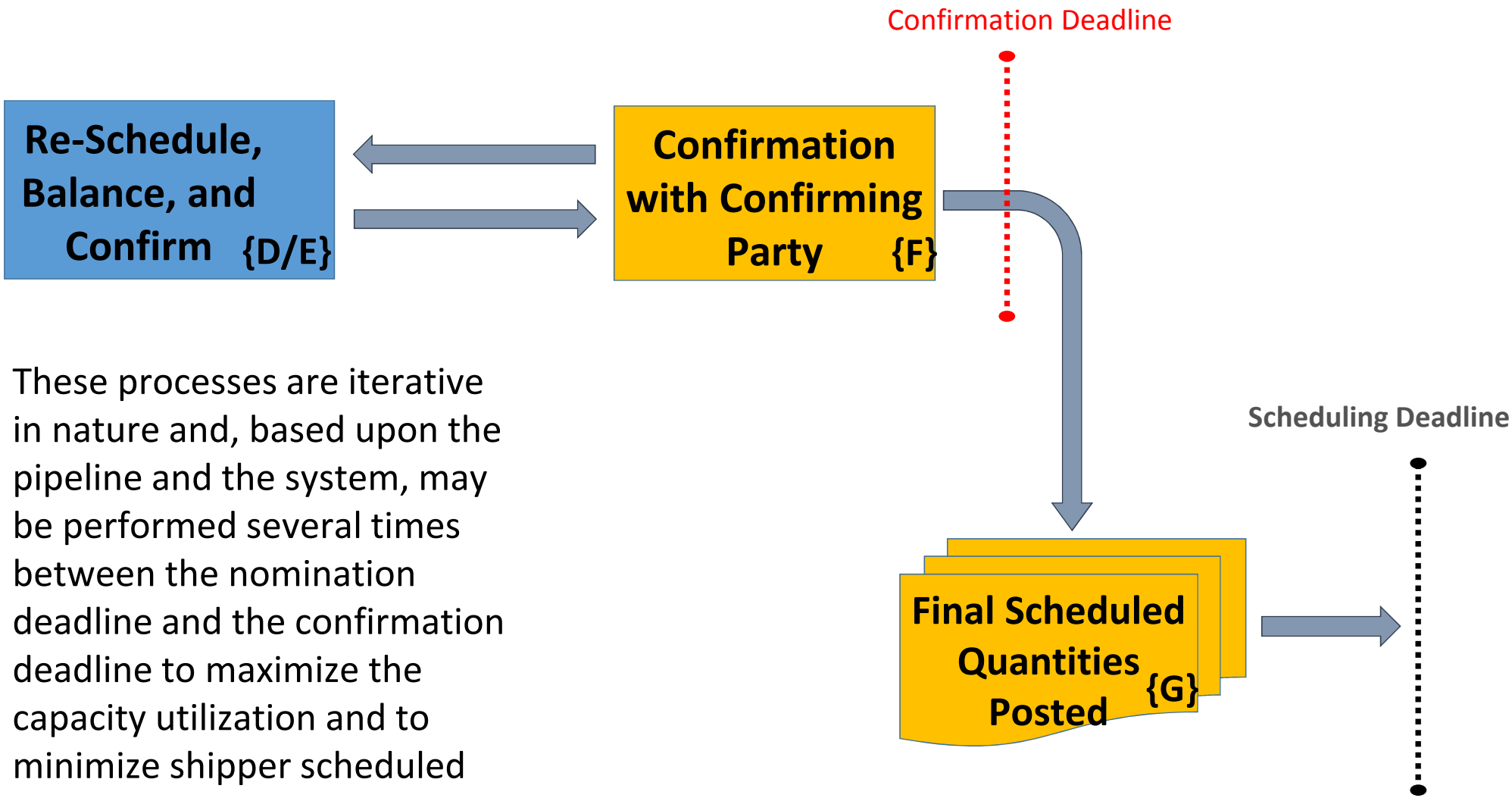
Confirmation



Confirmation Process Activities

Process Type		Process Activity
Confirming Party	Pipeline	
Manual	**Automated**	Confirming Party enters Confirmation via Pipeline's EBB.
Mixed	**Automated**	Confirming Party sends Confirmation (solicited or unsolicited) via EDI Confirmation to Pipeline's system.
Manual	**Manual**	Optional Pipeline process to allow Confirming Party to send Confirmation to Pipeline via e-mail, phone, etc.
Automated	**Automated**	Confirming Party confirms by exception (CBE).

Pipeline Scheduling/Balancing/Confirmation



These processes are iterative in nature and, based upon the pipeline and the system, may be performed several times between the nomination deadline and the confirmation deadline to maximize the capacity utilization and to minimize shipper scheduled imbalances.

The Art of Scheduling

The "Art of Scheduling" allows the Pipeline to maximize the scheduling of Shipper Nominations by incorporating dynamic scheduling variables that may impact operations of the Pipeline for the Nomination cycle being scheduled.

The Art of Scheduling

- Examples of Scheduling Variables:
  - No-notice needs for capacity to support anticipated usage of services purchased
  - Non-ratable flexibility, both required to support services purchased and on a best efforts basis
  - Performance of receipt/delivery locations – off-rate (daily/hourly)
  - Redirection of nominations through other portions of the pipeline
  - Interdependent capacity changes due to location of receipts/deliveries
  - Impact of weather on supply/demand and compressor efficiencies
  - Line pack and storage levels/location in relation to supply/demand
  - Gas quality fluctuation – heat content, etc.
  - Backhaul/displacement reliability
  - Maintenance activities
  - Physical assistance agreed upon between interconnecting parties
  - Order of applying reductions (optimization) – location v. segments, order of scheduling segments, timing of the balancing
  - Identification of opportunities for imbalance management
  - Balancing of pools

Challenges of Automation

- Each pipeline is unique in its physical layout, throughput ability, and FERC-approved tariffs and services. Additionally, some pipeline groups have a mix of proprietary and third party EBBs. All of these factors combine to potentially limit automation opportunities.
- Experienced human analysis is needed to factor in variables outside of the submitted nominations ("Art of Scheduling").
- Cost/benefit of automation may not be supported.
  - Level of activity may be low and may not justify automation
  - May be a lack of available qualified human and system resources to develop and maintain and/or the cost may be prohibitive
  - Many processes that can be automated have been automated
- Complex transactions are difficult to automate.
  - Leases
  - Transportation by Others (TBOs)
  - Storage by Others (SBOs)
  - Joint Ownerships

Challenges of Automation

- Automation may restrict/eliminate customer service activities.
  - Fixing of obvious errors
  - Flexibility on EPSQ within NAESB guidelines
  - Resolution of scheduling conflicts to minimize leaving capacity on the table
  - Time needed to work out physical solutions to minimize customer commercial impact, such as OBA help, storage flex, etc.
- Counterparty may be resistant to automation.
  - All of the above challenges of automation
  - Technology differences
    - EDI
    - Flat Files
    - NAESB Versions
  - Disagreement between interconnecting parties on level of confirmation
    - Entity
    - Contract
    - Package
  - Disagreement on EPSQ, such as on the level or when it should apply

Summary and Final Thoughts

- **Time is needed to evaluate how the modifications to the NAESB WGQ Nomination timeline, including the addition of the new Intraday 3 Cycle, affect all stakeholders in the process.**
- **It is important to factor in the cost/benefit for all parties involved in determining further automation. Pipelines are constantly evaluating where it makes sense to automate and most processes have been automated.**
- **Manual tasks associated with the Nomination and/or Confirmation processes are often Shipper and/or Confirming Party related and not Pipeline related.**
- **Sending and receiving Nominations and/or Confirmations via EDI does not speed up the processing time for Pipelines.**
- **Time is needed within each cycle for scheduling communications since many parties are involved in balancing the pipeline grid and any changes on individual pipelines may affect other parties in the grid.**

Summary and Final Thoughts

- **Changes to the scheduling process must retain the benefits of the "Art of Scheduling." Otherwise, it potentially may result in an inefficient use of the pipeline grid, which, most likely, would force Pipelines to be extremely conservative and rigid in order to protect firm service.**
- **Services exist today on Pipelines that can provide flexibility to Shippers. This flexibility is costly because it requires physical assets to support the underlying services. The costs of that flexibility will have to be considered.**
- **Nomination changes must be supported by the operational abilities of all parties, not just the pipeline.**
  - **Even if the Scheduling process is compressed to allow greater flexibility in nomination changes, the physical nature of gas is that it takes time at 15-25 mph to move around a pipeline system.**
  - **Physical line pack, receipts, deliveries, and/or storage must change to match Scheduling changes.**

Defined Terms

- **Nomination** is a process where a shipper requests a pipeline to transport gas under a transportation contract between locations on the pipeline or to make injections or withdrawals under a storage contract.

- **Confirmation** is a process to establish agreement between two parties at a location (upstream party and downstream party) to the quantity of gas which will flow at such location. One of the parties is the operator of the location.

- **Explicit Confirmation** is a process that requires a Confirming Party to respond to a Request for Confirmation with a Confirmation Response or to initiate an unsolicited Confirmation Response. If a Confirmation Response is not sent, the confirmed quantity will be calculated in accordance with the "lesser of" rule as outlined in NAESB WGQ Standard No. 1.3.22. Explicit Confirmation is the default confirmation methodology unless agreed to otherwise.

Defined Terms

- **Confirmation by Exception** ("CBE") means that the Confirming Parties agree that one party deems that all requests at a location are confirmed by the other party (the CBE party) without response communication from that party. The CBE party can take exception to the request by so informing the other party within a mutually agreed upon time frame (NAESB WGQ Standard No. 1.2.11). This process is often referred to as the Auto Confirm Process and is popular at many non-pipeline to pipeline locations.

- **Scheduling** is a process, internal to a pipeline, where the nominated or confirmed quantities are compared with the pipeline's available capacity to determine which quantities will be able to flow throughout the pipeline's system and/or points of interconnect. Incorporated within the scheduling process are any automated or manual procedures to allocate system capacity. Scheduling may occur prior to or after the confirmation process or multiple times during the evaluation window as determined by the pipeline.

Defined Terms

- **Pipeline Balancing** is a process where any reductions in nominated or confirmed quantities are applied as necessary to balance transactions across a pipeline's system. These quantities generally need to be re-confirmed.

- **Elapsed-prorated-scheduled quantity (EPSQ)** means that portion of the scheduled quantity that would have theoretically flowed up to the effective time of the intraday nomination being confirmed, based upon a cumulative uniform hourly quantity for each nomination period affected. (NAESB WGQ Standard 1.2.12)

- **Scheduled Quantity** is the final result of a shipper's nomination and the pipeline's confirmation and scheduling processes. It is the approved quantity for flow resulting from a shipper's nomination and the pipeline's evaluation during the confirmation and scheduling processes.

Defined Terms

- **Electronic Bulletin Board (EBB)** is the standardized exchange of information on the pipeline's Customer Activities Website. The website screens are mapped from the NAESB WGQ standard data sets and are communicated over the Internet using the NAESB Electronic Delivery Mechanism standards.

- **Electronic Data Interchange (EDI)** is the ANSI ASC X12 computer-to-computer exchange of information in files mapped from the NAESB WGQ standard data sets. EDI is communicated over the Internet using the NAESB Internet Electronic Transport.

- **Flat File (FF)** is the standardized flat file computer-to-computer exchange of information in files mapped from the NAESB WGQ standard data sets. A Flat file is communicated over the Internet using the NAESB Internet Electronic Transport. Although NAESB has standardized the flat file format, FERC has not mandated its use in all cases.

QUESTIONS?