

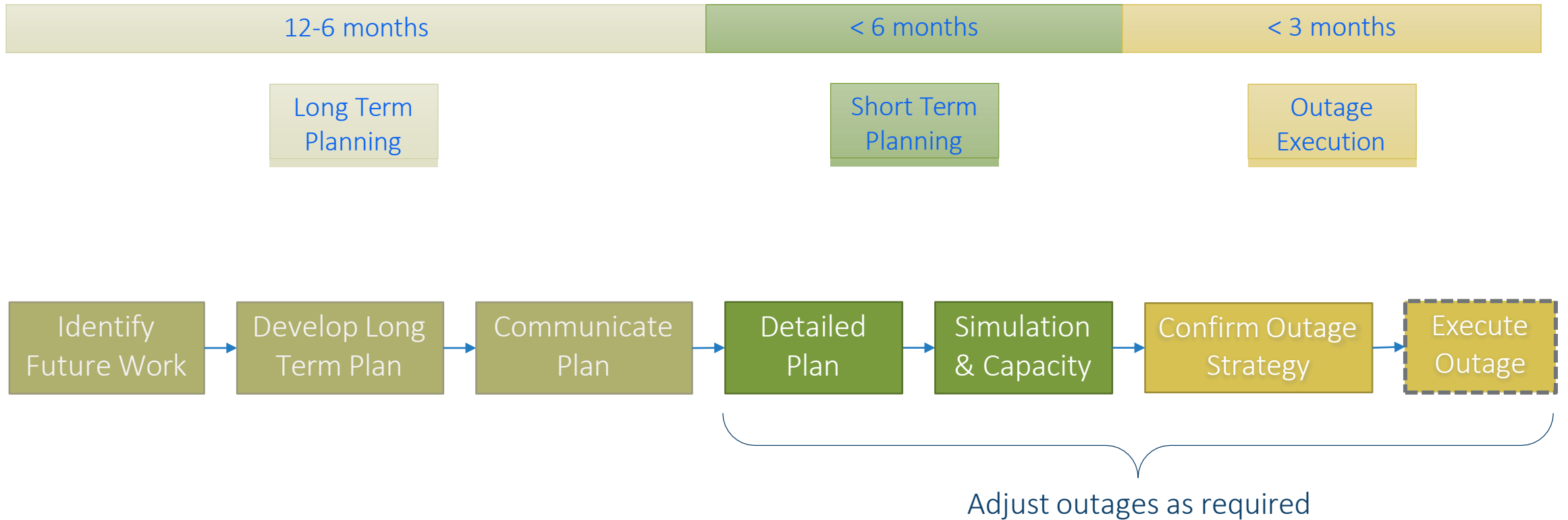


Outage Management 101

EDUCATIONAL MATERIAL



Outage Management Process



Customer-provided Plant Turnaround information is leveraged through the outage planning process.

The Plant Turnaround Form can be found on my.tccustomerexpress.com under 'Other Links' or [by clicking this link](#)

Long Term Planning (12 – 6 months)



Identify Future Work

- Pipe Integrity
- Compression
- Measurement
- Capital Expansion



Develop Long Term Plan

- Determine outage windows
- Bundle/overlap outages
 - Account for interconnect outages and plant turnarounds
- Model outages to determine operational setup and outage capability



Communicate Plan

- November Customer Operations Meeting
- Add to Daily Operating Plan (impacts have been determined to potentially drive change to service availability)

Short Term Planning (< 6 months)



Detailed Plan

- Confirm bundled and overlapping outages
- Identify new bundling opportunities
- Verify outage window
- Account for any new constraints



Simulation and Capacity

- Hydraulic modelling
- Determine capacity and impact
- Optimize operating strategy and setup
 - Linepack requirements
 - Flow requirements
 - Pressure requirements
 - Resource requirements
 - Tool speeds (for inline inspections)
- Adjust outage as required
- Communicate changes to stakeholders (including updates to the Daily Operating Plan)

Outage Execution (< 3 months)



Outage Strategy Confirmation

- Outage writeup
- Coordinate outage with region
- Optimize strategy as needed



Adjust Service Availability - if required

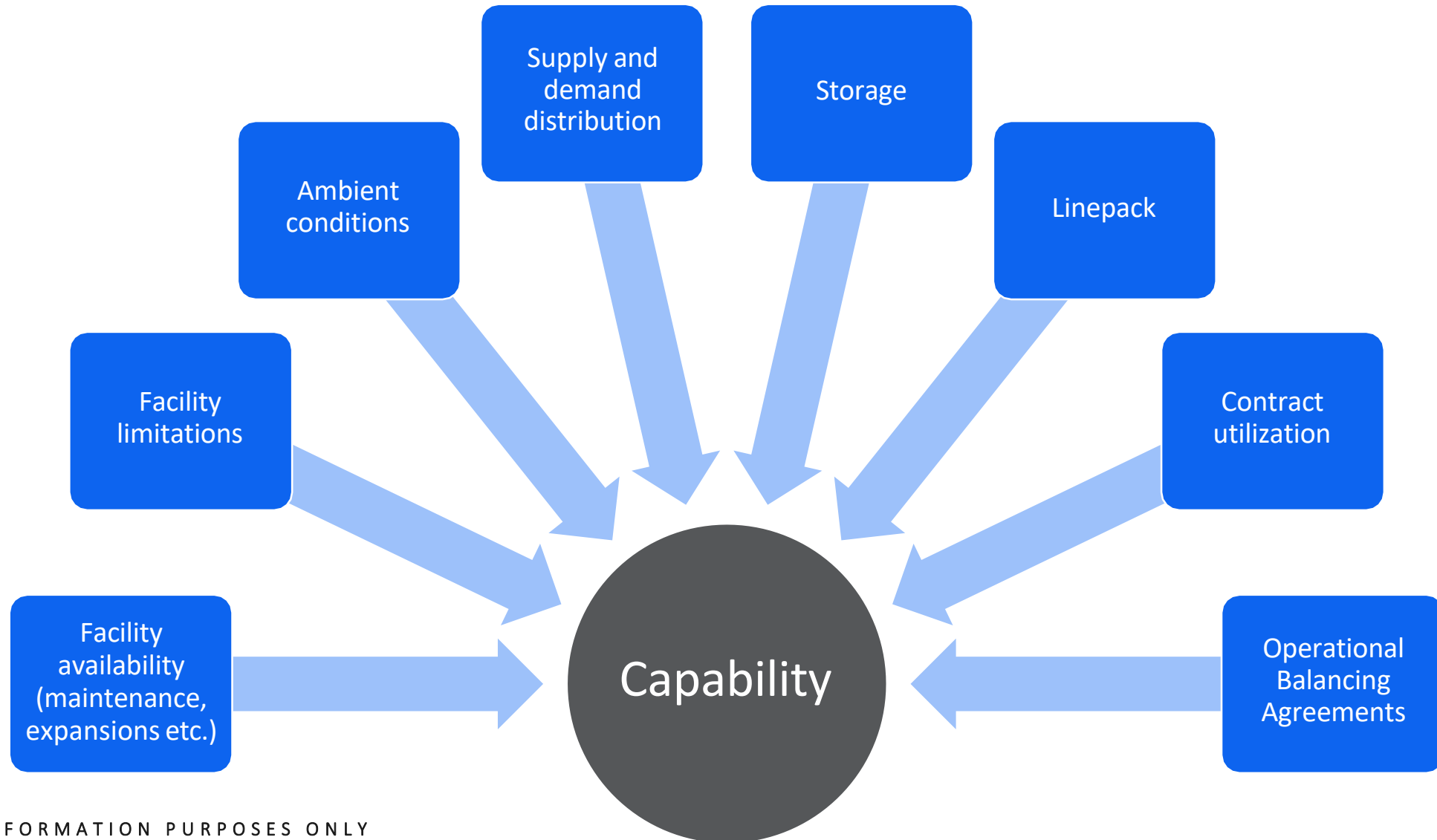
- Bulletin issued for Service Availability changes



Execute Outage

- Review and manage system health during the outage to reduce impact

Capability Determination | Primary Factors



CONTACTS



MARKETING REPS

[Customer Express Contacts
\(tccustomerexpress.com\)](https://tccustomerexpress.com)

MINH BADAU

Chair, NGTL/FH Customer Ops

403.920.5804

minh_badau@tcenergy.com

