

SCRIPT CONSOLIDATION

APRIL 30, 2021

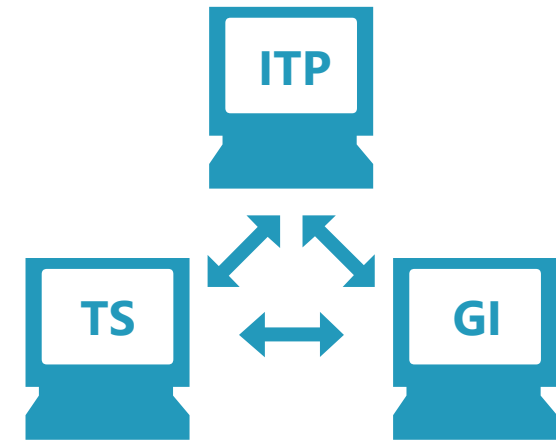
TOPICS

- Background
- Consolidation Overview
- Consolidation Deep Dive
- May Meeting Topics

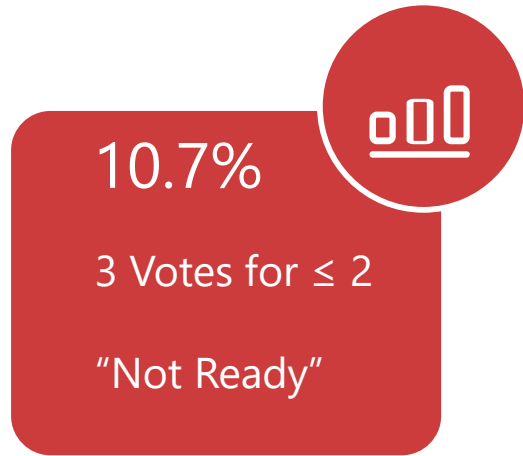
BACKGROUND

CONSOLIDATION: SCRIPT SCOPE OF WORK

- Appropriate consolidation of SPP's transmission planning and study processes, including ITP, Generator Interconnection (GI), and Transmission Service (TP) studies to:
 - Develop more optimal solutions that meet a broader set of customer needs
 - Synergize analysis so that beneficiaries and cost-causers can be identified in a holistic, uniform fashion
 - Improve planning efficiency, effectiveness and timeliness
 - Reduce the number of model sets needed
 - Reduce reliance on customer-requested, queue-driven studies

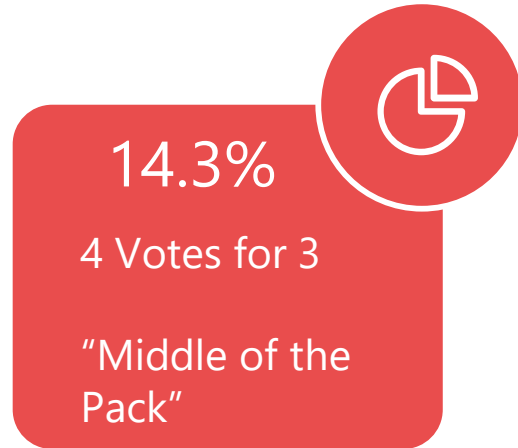


SCRIPT CONSOLIDATION SUB-TEAM SURVEY RESULTS



Not Ready

Complexity
Unintend Consequencies



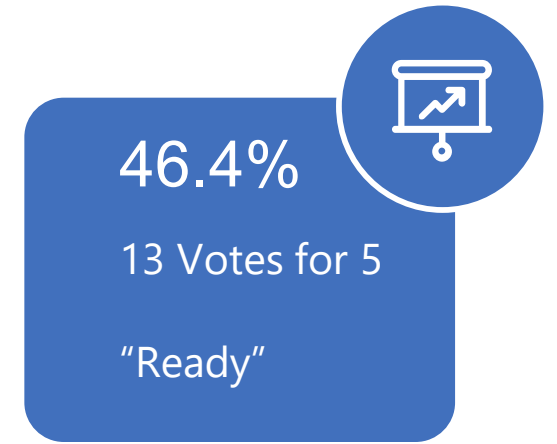
Middle of the Pack

More content
Schedule Flexiability



Almost Ready

Build out Mechanism

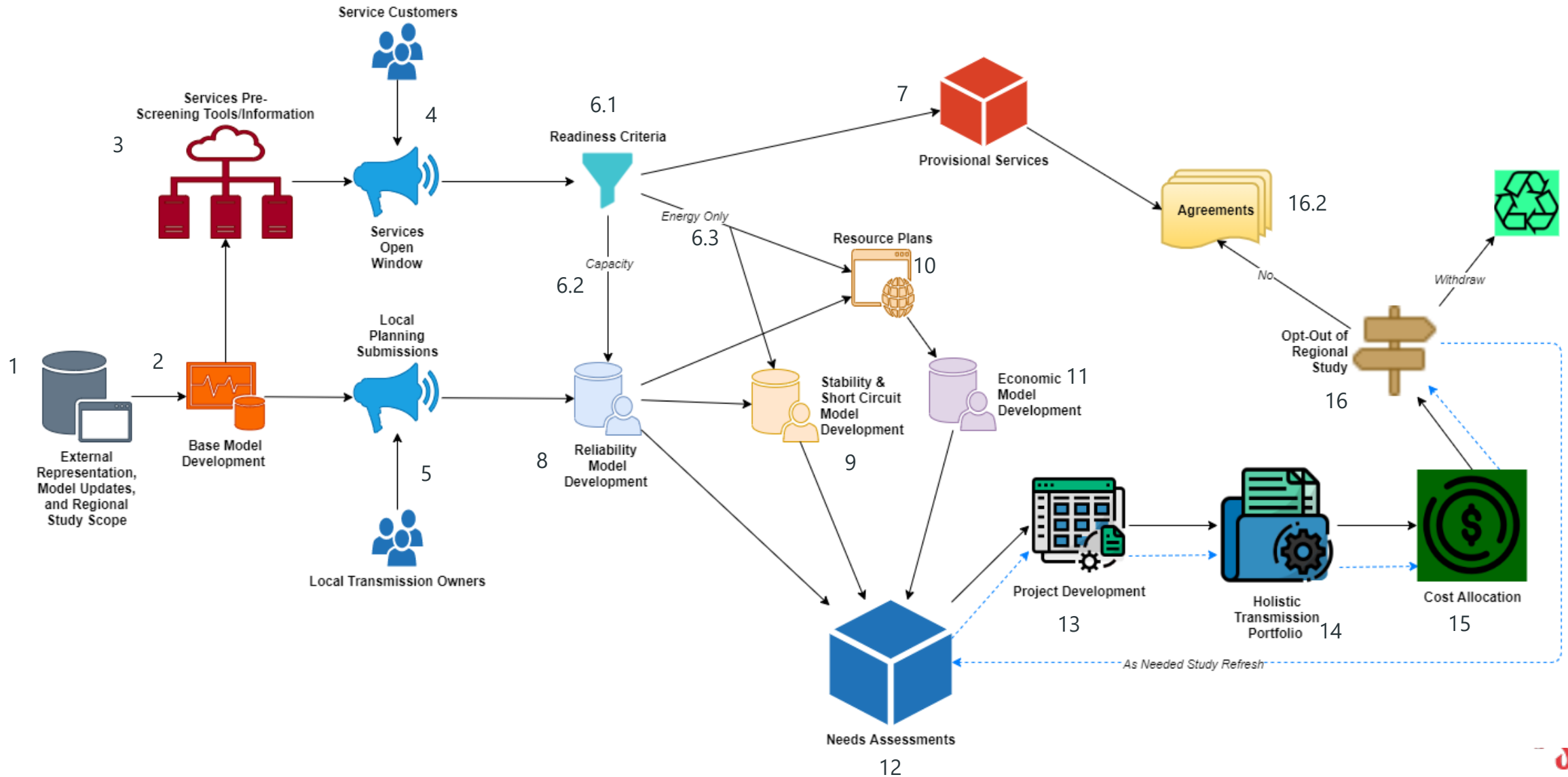


Ready

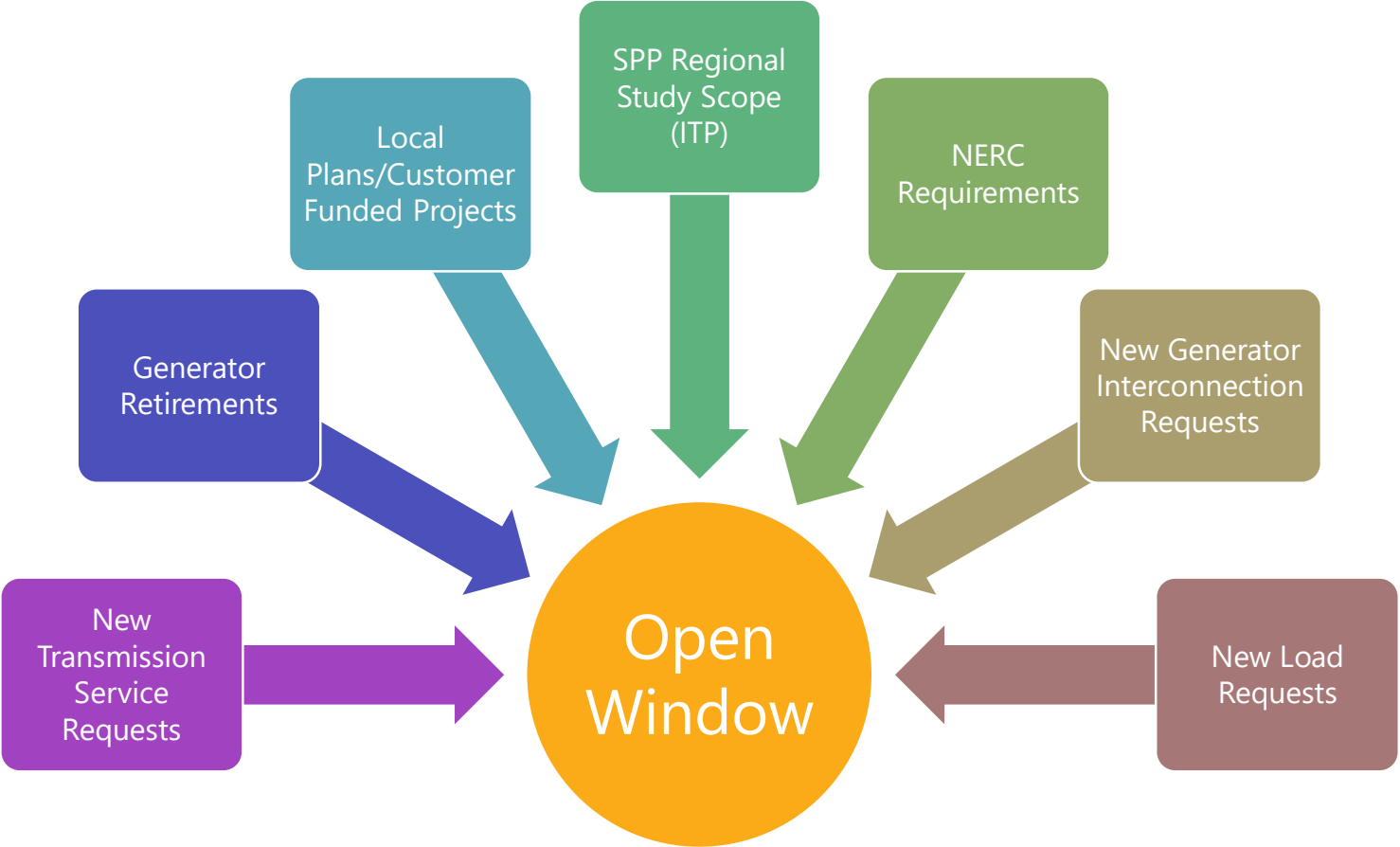
Policy Level Ready

CONSOLIDATION OVERVIEW

CONSOLIDATED PLANNING ASSESSMENT



CONSOLIDATED ASSESSMENT CUSTOMERS/INPUTS



EFFORTS UNDER WAY

- Transition plan and implementation
 - Address GI backlog and recent ITP schedule challenges
 - Staff augmentation for development of:
 - Detailed process and documentation while maintaining production work
 - Automation
- Continue developing details for the consolidated approach
 - Model development
 - Pre-screening
 - Resource plans
 - Project and portfolio optimization
- Consolidated planning assessment impact assessment
 - Engage the SPP PMO
 - Analysis of current state & future state resource needs
 - Cost Estimations
 - Creation of software needs for requested timeline
 - Identify SPP Engineering, IT, and consulting staffing requirements for implementation

CURRENT DAY “TOP 3” PLANNING EFFORTS

- ITP
 - 40,000 hours for model development and assessment
 - Includes part of TPL assessments
- GI
 - 8,000 hours/per DISIS x 2 DISIS Studies per year = 16,000 hours
 - 10,000 hours special studies
 - Plus backlog work
- TS
 - 6,000 hours/per aggregated studies x 2 per year = 12,000 hours
 - 5,000 hours for delivery point addition and sponsored upgrade

Total: 83,000 hours (excludes additional NERC compliance work, GI backlog)

FUTURE CONSOLIDATED STATE

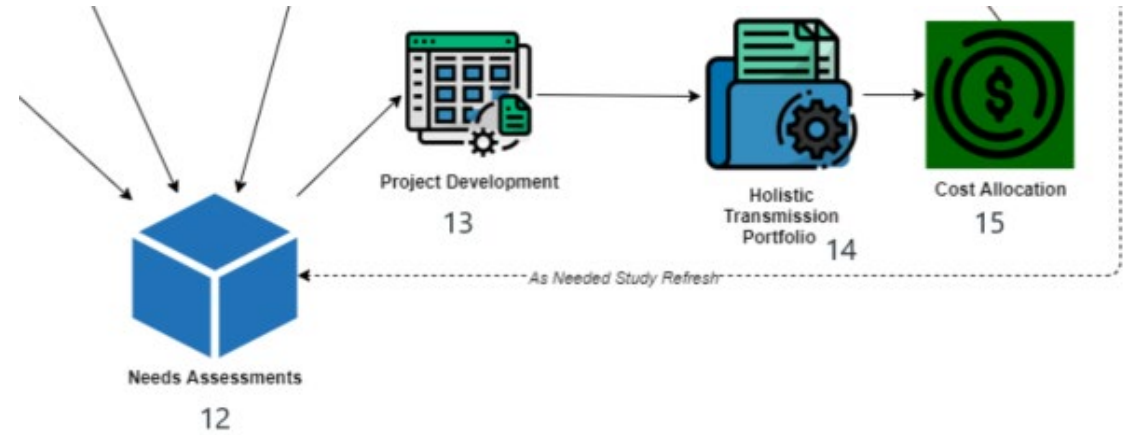
- Consolidated study delivered similar to current day timeframes
 - Limit consolidated study cycle partial overlap to at most two studies
 - Limited number of restudies within one cycle
 - Limit late submissions (DQ sub-team)
- Optimize and reduce ITP/TPL/GI/TS hours while maintaining same level of quality
 - Staff alignment
 - Coordinate schedules across planning
 - Remove duplicate or unnecessary work
- Automation build out
 - Improved data linkages
 - Creating efficiency for building models and simulating assessments
 - Additional opportunities for data validation

POTENTIAL BENEFITS

- Reduce model data set mapping between reliability, stability, and economic models and software applications
- Leverage services pre-screening tools for service customers and reducing resource planning staff work
- Eliminates model idle and refresh time between various model builds and assessments
- Minimizing sub-optimal solutions sourced from various assessments
- Optimizing the schedule to meet multiple needs

CONSOLIDATION DEEP DIVE

ENGINEERING ENGINE



- **Engineering Engine** - Expand existing databases to include:
 - All results and study outputs
 - Needs Assessment and Portfolio Development milestones
 - Store and correlate reliability, economics, policy needs and solutions
 - Tie-in to all model developments and software requirements
 - TAGIT/TRAC

Staff	Consultants	Customer Facing	Automation	IT
√	TBD	TBD	√	√

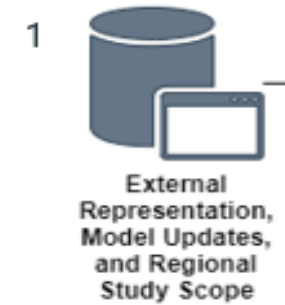
CONSOLIDATED PLANNING ASSESSMENT

1. 'External' Model Data

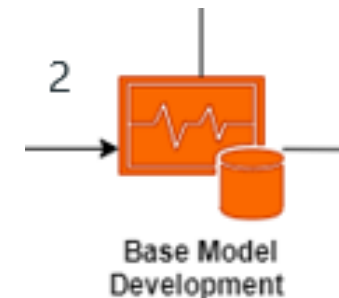
- New Interface between Powertech Database for MMWG/SPP(MDAG/ITP) modeling data and SPP's MOD or EDST databases
- Operational data correlation

2. Base Model Development

- Model Reduction efforts
- Streamline data collection and reliability model development efforts
- Reduce schedule
- DQ correlation (Modeling Data Quality Assurance and Benchmarking)



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√	TBD	√	√	√



CONSOLIDATED PLANNING ASSESSMENT

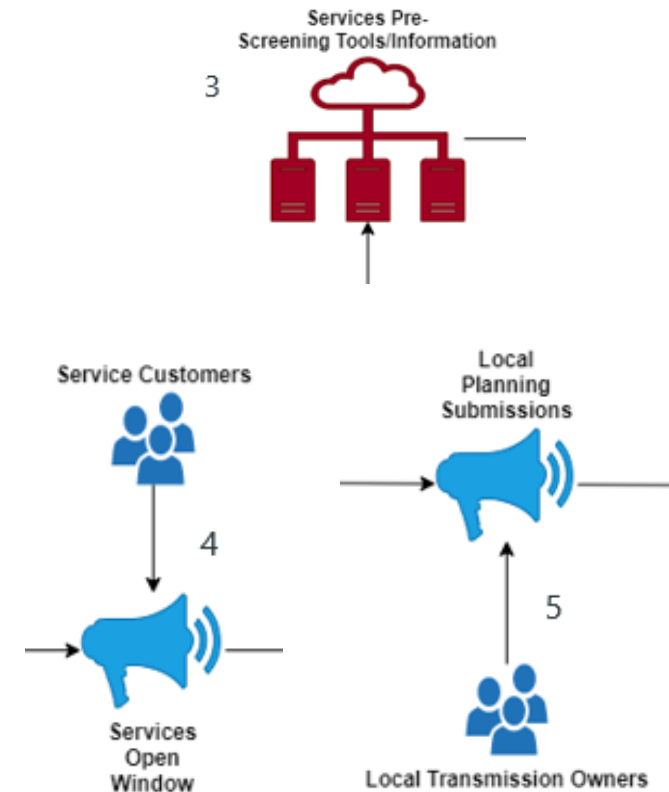
3. Services Pre-Screening (Services)

- New Online POI Evaluation Tool
- Historical Information
- Customer tools to limit speculative requests that enter into consolidated study

4/5. Open Windows (Services)

- Open Window, submissions, selections, decisions
 - Automate windows and notifications to customers
- Expand Online Submission Tool to submit Services TS/GI requests
 - SmartQ, EDST or other
- Submit Local Planning considerations
 - LPC, LPP, Age and Condition

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√	√	√	√	√

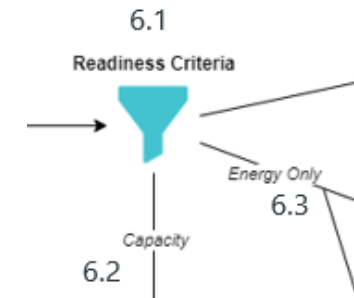


CONSOLIDATED PLANNING ASSESSMENT

6. Customer Readiness Criteria and Minimum Requirements Path (Services)

- Service Requests ready for Consolidated Assessment includes study fees or financial securities, among other requirements
 - Energy and capacity requests (as appropriate for service type)
 - Resource Plan/Economic Model
 - Stability and Short Circuit Models
 - Capacity requests → Reliability Model

Staff	Consultants	Customer Facing	Automation	IT
√			√	√



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√	√		√	√

7. Provisional Services (Services)

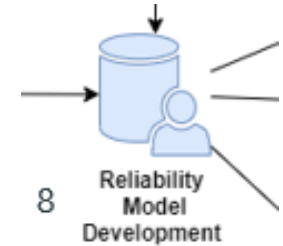
- Screening studies for “no-harm” system impacts
- Interim study or limited operation → Interim GIA (IGIA)



CONSOLIDATED PLANNING ASSESSMENT

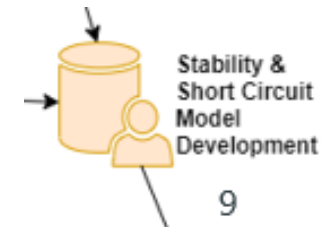
8. Reliability Model Development

- Incremental model development to incorporate open window requests



9. Stability/Short-Circuit Model Development

- Complete base models, incrementally add open window requests



*Interface with Engineering Engine

Staff	Consultants	Customer Facing	Automation	IT
✓	✓		✓	✓

CONSOLIDATED PLANNING ASSESSMENT

10. Resource Plans

- Streamline/automate Futures resource plans process
- Incorporate new service requests
 - Inclusion of TS/AQ, etc...
 - Coordinate CRIS/ERIS requests with Futures assumptions



11. Economic Model Development

- Upgrade to PROMOD X with cloud based computing
- Refresh Automation inputs, perform assessment, outputs and reports
- Interface with Engineering Engine



Staff	Consultants	Customer Facing	Automation	IT
✓	✓		✓	✓

CONSOLIDATED PLANNING ASSESSMENT

12. Needs Assessments*

- Perform holistic needs assessments, correlate across need types
- Store results in Engineering Engine



13. Project Development

- Develop solutions to meet all need types
 - Staff
 - Stakeholder submission considerations (TO/Order 1000)*
- Evaluate all solutions against all needs to feed holistic portfolio development*
 - Store results in Engineering Engine*

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✓	✓	✓	✓	✓

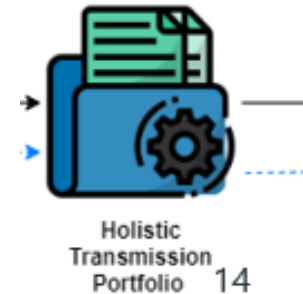


*Automation development needs

CONSOLIDATED PLANNING ASSESSMENT

14. Holistic Transmission Portfolio (Optimization)*

- Acceptable use of non-transmission expansion
- Prioritization of project value drivers
- Holistic needs and solutions assessments
- Incorporation of aging infrastructure in regional planning



15. Cost Allocation (Cost-Sharing)*

- Allocation based on avoided project cost
- Allocation based on benefits
- New billing determinants and allocators
- Application of new cost-allocation
- Synchronize cost sharing changes with planning process changes

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√	TBD		√	√



CONSOLIDATED PLANNING ASSESSMENT

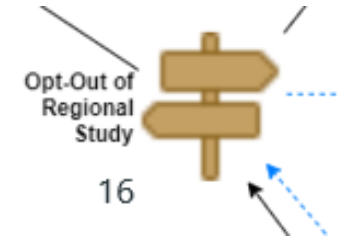
Sequence to evaluating portfolio solutions (Optimization Team):

1. Most costly market constraints and public policy needs
2. Load and transmission service requests
3. GI service requests
4. Meet acceptable criteria for local reliability needs and age or condition needs

CONSOLIDATED PLANNING ASSESSMENT

16. Customer Opt-Out

- Decision point for service customers to withdrawal
- Opportunity for customers to participate in next consolidated assessment



Study Refresh*

- Repeat steps 12-16
- Need to perform holistic impact assessment
 - Schedule impacts
 - Determine number of allowable restudies based on timeline investigations

Staff	Consultants	Customer Facing	Automation	IT
✓	✓	✓	✓	✓



*Automation development needs

MAY MEETING TOPICS

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- Schedules
 - Consolidation study schedule
 - Transition timeline
- Continue consolidation deep dive
- Implementation cost estimates