Southwest Power Pool

ECONOMIC STUDIES WORKING GROUP

AND

TRANSMISSION WORKING GROUP

October 21, 2010

Teleconference / Web Conference

2:00 p.m. – 4:00 p.m.

• Minutes •

Agenda Item 1 – Administrative Items

SPP ESWG Chair Alan Myers and TWG Chair Noman Williams called the meeting to order at 2:00 p.m. The following members were in attendance via teleconference or web conference: (Attachment 1 – Attendance)

ESWG Members:
Alan Myers, ITC Great Plains
Paul Dietz, Westar Energy
Blake Elliott, BPU
Doug Kallesen, NPPD
Mark Loveless, OMPA
Greg Sweet, Empire
Al Tamimi, Sunflower Electric
Bruce Walkup, AECC
Kip Fox, AEP

TWG Members:
Noman Williams, Sunflower Electric
John Chamberlin, CU
Angela Easton, Calpine
Jason Fortik, LES
Ronnie Frizzell, AECC
Bruce Cude for John Fulton, Xcel Energy / SPS
Joe Fultz, GRDA
Dan Lenihan, OPPD
Randy Lindstrom, NPPD
Jim McAvoy, OMPA
Matt McGee, AEP
Nathan McNeil, Midwest Energy
Jason Shook, GDS/ETEC
Don Taylor, Westar Energy
Mitch Williams, WFEC
Harold Wyble, KCPL

Tony Gott, AECI (liaison)
Dave Sargent, SPA (liaison)

Agenda Item 2 – 2011 ITP 10-Year Assessment Scope

Charles Cates presented the 2011 ITP10 draft scope to the groups. The stakeholders provided comments and suggestions on the language in the scope (Attachment 2 – ITP10 Draft Scope). Staff will incorporate the feedback from the meeting and provide a revised draft to the groups by Friday October 22. Stakeholders were asked to provide staff changes/comments by Friday October 29 with earlier submittals appreciated. The working groups will review their portions of the scope separately: TWG plans to approve the scope at their November meeting; ESWG will make plans to review the scope following TWG review.

Respectfully Submitted,
Tim Miller & Rachel Hulett

Proxy Notifications

TWG

Bruce Cude for John Fulton, Southwestern Public Service Company

From: Fulton, John S [mailto:John.Fulton@XCELENERGY.COM]
Sent: Wednesday, October 20, 2010 11:56 AM
To: Rachel Hulett; Williams, Noman
Cc: Hyde, Travis; Cude, Bruce
Subject: ESWG/TWG Net Conference Oct 21, 2010

I will be out of town on Thursday and can't attend the conference call. Bruce Cude will have my proxy to vote on any SPS matters.

John S. Fulton
Xcel Energy | Responsible By Nature
Manager, Transmission Asset Management
600 South Tyler, 21 Amarillo, TX 79101
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Name	Company
Adam McKinnie	MO PSC
Al Tamimi	Sunflower
Alan Myers	ITC Great Plains
Angela Easton	Calpine
Bennie Weeks	Xcel
Blake Elliott	BPU
Bob Lux	SPP
Brittney Miller	AR PSC
Bruce Cude	Xcel/SPS
Bruce Walkup	AECC
Charles Cates	SPP
Dan Lenihan	OPPD
David Sargent	SPA
Dennis Reed	Westar
Don Taylor	Westar
Doug Collins	OPPD
Doug Kallesen	NPPD
Greg Sweet	Empire District
Harold Wyble	KCPL
Jason Fortik	LES
Jason Shook	GDS/ETEC
Jim McAvoy	OMPA
Jody Holland	SPP
Joe Fultz	GRDA
John Chamberlin	City Utilities
Keith Tynes	SPP
Kip Fox	AEP
Mark Loveless	OMPA
Matt McGee	AEP
Mike Collins	
Mitch Williams	WFEC
Nathan McNeil	Midwest Energy
Noman Williams	Sunflower
Paul Dietz	Westar
Randy Lindstrom	NPPD
Ronda Redden	OGE
Ronnie Frizzell	AECC
Roy Boyer	Xcel/SPS
Steve Gaw	
Tim Miller	SPP
Tony Gott	AECI

ITP10 Scope (draft 7)

REDLINE comments/suggestions by Doug Kallesen, NPPD

October 20, 2010 (to SPP Staff Rev 5 posted 10-15-2010)

Suggest adding page numbers to the document

Other changes by staff following TWG/ESWG joint meeting on 10/21/2010.

Table of Contents

Overview

This document presents the scope and schedule of work for the ~~2010~~ Integrated Transmission Planning (ITP) Year 10 Assessment. ~~This analysis will be conducted on the 10 year planning horizon, including identifying an approximate timetable for the installation of ITP10 facilities.~~ This document ~~is expected to be~~was reviewed by the Transmission Working Group (TWG) and the Economic Studies Working Group (ESWG) ~~in~~ beginning October 2010, with the expectation of approvals from the Market Operations and Policy Committee (MOPC) and the Board of Directors (BOD) in January 2011. ~~Note that this document is only for the 2010 iteration of the Year 10 portion of the ITP study. It is expected that a new scope will be presented for the next iteration of the Year 10 Assessment prior to its inception in 2013.~~ This analysis will use the results of ~~this~~ the most recent ITP Year 20 Assessment as described in the ITP Planning Process ~~document dated October 29th, 2009 and~~ available at http://www.spp.org/publications/ITP_Process_Final_20091029.pdf.

Comment [drk1]: Throughout the document these date references are confusing to me as to:
1. Whether this study begins in 2010 or 2011 (Timeliine text intro indicates start is 2011, but the diagram in that section looks llike it implies 2010 (since it starts in July).
2.To me it would see appropriate to give the name of the study the final year of the study so that it does not appear to be outdated immediately when it is completed.

Comment [tlm09052]: Make this generic

Comment [tlm09053]: This section is overview of the document, we'll address the timing question in another section.

Comment [drk4]: Same comment as above – conform throughout, whatever naming convention is determined.
Another point – Some places its ITP Year 10,, some places ITP 10. Some places Assessment is capitalized, some not. Suggest cleaning those type of items up a bit.

Comment [tlm09055]: Why is it being reviewed yearly?

Clarify whether 10 yr or 10th year. Should say year 10 everywhere.

Comment [tlm09056]: We've generally removed dates to make the scope more generic for each cycle. The scope document will update it's approved dates.

Objective

The second phase of the ITP process is the 10-Year planning horizon assessment. The ~~10-Year assessment~~10-year Assessment is a value-based planning approach that will analyze the Transmission System and identify 100kV and above solutions to issues ~~not resolved in the 20-Year assessment~~stemming from two sources: (a) the issues that are identified ~~reside~~ on the 69 ~~100~~kV and above~~115kV-230kV~~ system~~s~~, ~~or~~and (b) ~~the~~ issues ~~appear prior to the expected installation date for~~identified by the ITP20 process ~~facilities~~within the ITP10 period.

Because of the narrower focus, the ~~10-Year assessment~~10-year Assessment will be utilized in integrating the 100kV and above facilities into the ~~EHV backbone~~ ITP20 process~~and~~ to meet such needs as the following: a) elimination of criteria violations; b) the mitigation of known or projected congestion; c) improved access to markets; d) ~~backbone~~transmission expansion staging; and e) improved interconnections. In the ~~10-year assessment~~10-year Assessment the scenarios considered in the 20-Year assessment will be narrowed to consider a combination that are determined to be most likely ~~needed~~ occurring within the 10-year horizon.~~-~~ This assessment is not intended to review each consecutive year in the planning horizon.

Economic and reliability analysis will be utilized as a way to further refine and establish the timing of the projects identified in the 20-Year assessment. It is anticipated ~~that many of the ITP projects identified through~~ the combination of the 20-Year and 10-Year plans will greatly reduce ~~eliminate or significantly~~ or defer the need for ~~some reliability driven~~ projects on the underlying Transmission System~~. by strengthening the system with a more robust backbone~~.

Tariff Discussion

This section will discuss how each of these tariff minimum requirements will be addressed. These points may get worked into throughout the document.

From the tariff section III.6 -

6) Policy, Reliability, and Economic Input Requirements to Planning Studies
The Transmission Provider shall incorporate, as appropriate for the assessment being performed, the following into its planning studies:
a) NERC Reliability Standards;
b) SPP Criteria;
c) Transmission Owner-specific planning criteria as set forth in Section II;
d) Previously identified and approved transmission projects;
e) Zonal Reliability Upgrades developed by Transmission Owners, including those that have their own FERC approved local planning process, to meet local area reliability criteria;
f) Long-term firm Transmission Service;
g) Load forecasts, including the impact on load of existing and planned demand management programs, exclusive of demand response resources;
h) Capacity forecasts, including generation additions and retirements;
i) Existing and planned demand response resources;
j) Congestion within SPP and between the SPP Region and other regions and balancing areas;
k) Renewable energy standards;
l) Fuel price forecasts;
m) Energy efficiency requirements;
n) Other relevant environmental or government mandates; and
o) Other input requirements identified during the stakeholder process.
p) In developing the long term capacity forecasts, the studies will reflect generation and demand response resources capable of providing any of the functions assessed in the SPP planning process, and can be relied upon on a long-term basis.
q) Such demand response resources shall be permitted to participate in the planning process on a comparable basis. These studies will consider operational experience gained from markets operated by the Transmission Provider.

Comment [tlm09057]: List from the tariff from Dennis Reed.

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Stakeholder Process

The 10-year Assessment ~~ITP 10 Assessment~~ will be vetted through the SPP working groups. The ESWG will handle the economic portions of the ~~ITP 10 assessment~~10-year Assessment and all related data and assumptions. The TWG will handle the reliability impact portion of the ~~ITP 10 assessment~~10-year Assessment and all related data and assumptions. The following items will be discussed at the respective working groups:

A. TWG~~-~~/MDWG

The TWG or the MDWG will be responsible for the review of ~~to review~~ the data and results for the following items:

1) Transmission topology inputs to the models
2) ~~Flowgate reviews~~Constraint Review
3) ~~Limited r~~Reliability assessment
4) ITP Report
5) Seams impacts
6) Load Forecasts

~~6)~~

B. ESWG

The ESWG will ~~review~~ be responsible to review the data and results for the following items:

1) Economic modeling assumptions
2) Futures
3) Futures Resource Plan and Siting ~~reviews~~
4) Metrics
5) Congestion analysis
6) Economic Model ~~Results~~
7) ITP Report

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Comment [drk8]: This section is an example of the mixture of capitalizing / not capitalizing Assessment, as mentioned earlier.

Comment [tlm09059R8]: This has been addressed.

C. MOPC

The MOPC will be approached for ~~approve~~ endorsement of the following items:

1) ITP Report
2) Metrics ~~approval~~
3) Futures ~~review~~

D. RSC

The RSC will have oversight over the following items:

1) Policy-driven decisions
2) Futures
3) Cost and benefit allocation

~~D.~~E. BOD~~/RSC~~

The BOD~~/RSC~~ will be approached for approv~~e~~al of the following items:

~~1)~~4) Policy-driven decisions
~~2)~~5) Futures
~~3)~~6) Cost and benefit allocation

Study Process

1. The ~~scenarios~~ futures will be narrowed and assumptions refined through the various stakeholder groups (ESWG, TWG, MOPC) within the boundaries of the previously approved ~~scenarios~~ futures in the 20-Year assessment, unless directed otherwise by the SPP SPC or Board.

2. The ESWG will oversee the development of the economic models ~~will be developed through the ESWG using~~that incorporate the assumptions developed in step #1 above, including review of data and results. Similarly, the TWG will oversee the development of ~~T~~the power flow and stability models used in this analysis, ~~will include~~including a summer peak case and an off-peak case. These ~~for each scenario and an off-peak case and~~ will be developed through the existing SPP Planning Model Process via the MDWG.

3. Staff will perform an initial analysis using applicable NERC Reliability Standards on ~~scenario~~ power flow models that represent the applicable load profiles and generation dispatch ~~from~~ associated with each scenario. All facilities ~~100~~ 69 kV and above in the models will be monitored within SPP and the first-tier for this analysis ~~in consideration of~~as a means to determine 100kV and above solutions to the problems identified. The TWG will review the results.

4. Staff will concurrently identify additional congested facilities and develop constraints ~~using an appropriate software tool~~ by performing ~~a~~ transfer analyse~~i~~s ~~and~~ that ~~monitoring~~ monitor~~s~~ all modeled facilities and ~~outaging~~ outage~~s~~ the 100kV and above facilities within SPP and among first tier neighbor systems.

5. An appropriate software tool will be used to analyze all identified congested facilities on the SPP Transmission System. This will be done using security constrained unit commitment and economic dispatch (SCUC/ED) over 8,760 consecutive hours for each model. This analysis will help identify projects required since the new ~~flowgates~~ constraints would identify congestion on the Transmission System.

6. A ~~limited~~ stability analysis will be conducted to determine if angular and voltage stability requirements for the region are met under each future. This analysis will be used to determine the appropriate upgrades further required beyond the thermal and voltage issues from the steady state and economic analysis.

Comment [drk10]: Correct? Thought is that regulatory changes or new resource locations may change during the process… i.e., we want to be flexible to incorporate the latest thinking.

Comment [tlm090511]: Make sure to discuss what is applicable? Category A, B, C? Is this for compliance filings?

7. 100kV and above solutions to criteria violations and/or congested facilities will be identified with input from stakeholders. Staff will request suggestions for solutions from stakeholders and perform a preliminary assessment of benefits to determine the solution to be presented in the final ITP. During this phase, Staff will coordinate solutions with the AG and GI Study processes to best accommodate the high-demand areas for the SPP Transmission System footprint. 100kV and above solutions will be evaluated for lower voltage facilities criteria violations or congestion. Issues identified that are not resolved with 100kV and above solutions will be deferred to the ~~4-Year~~short-term assessment for resolution.

8. A check will be performed to determine if projects identified in the 20-Year assessment will eliminate or defer any projects identified in the ~~10-Year assessment~~10-year Assessment . This check will be performed by replacing lower voltage solutions with the higher voltage solutions identified in the 20-Year assessment and rerunning the economic and previously run contingency analysis.

9. A follow-up analysis will be performed by Staff repeating the steps above on the identified solutions to validate the solutions and check for any additional criteria violations and/or congested facilities that may have been created. Staff will also perform a stability analysis on these results.

10. Although not specifically spelled out in steps #1-9, the ITP 10 will deliver an approximate time staging of the facilities in the plan as well as a demonstration that the ITP10 is a robust, yet cost-effective plan.

11. Where appropriate, sensitivity analysis will be performed for variables having significant affects on transmission planning.

~~9.~~12. The Study will include an analysis of ~~renewable~~ operating issues and solutions in some detail, such as looking into ~~ramping~~ramp rates, min load/max wind conditions, interchange conditions resulting from wind development inside and outside SPP, use of demand resources, treatment of scheduled outages, etc.

Comment [tlm090512]: Steps 7 & 8identify solutions for problems found in steps 3-6.

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Comment [tlm090513]: Deleted renewable and made sentence more generic for all resources including demand side managment

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Data inputs

A. Economic

The analysis for the *ITP 10 Year Study* will consist of engineering models to facilitate the development of long range transmission plans. One set of models will be the economic models used to come up with a market based resource dispatch used in the analysis. These models require certain assumptions as to generation resources, parameters and locations (detailed in the following sections). The output of these models will allow engineers to determine the appropriate transmission needed from an economic perspective ~~to be determined~~. This output can also be used to determine deliverability of the resources to market used in the analysis when taken into post processing type tools.

The major assumptions needed to construct the economic models are detailed below and contain, but are not limited to: market structure, load forecasts, resource forecasts and parameters, transmission topology, renewable assumptions, fuel pricing and availability~~, congestion monitoring points (i.e. flowgates)~~, etc. Once these assumptions are input into an economic model, the model will develop a security constrained unit commitment (SCUC) and security constrained economic dispatch (SCED).

The following sections ~~will~~ detail the parameters to be used in the economic portion of modeling.

I. Market structure

~~The Study will take place for a time horizon of 10 years from the start of the study. By that time,~~ SPP anticipates having in place a Day 2 market structure, which is~~is at the time of this writing is~~~~are~~ ~~currently being~~under development ~~developed~~, by the year-10. Additionally, SPP also anticipates having in place a single balancing authority for the footprint, using an ancillary services market. These parameters will be baseline assumptions for the analysis.

II. Load forecasts

The Study will require load forecasts for both SPP as well as areas outside of the SPP footprint. SPP staff ~~will~~ queries~~query~~ its members through the MDWG for appropriate load forecasts to use in each of the pricing zones for the modeling footprint. Energy forecasts will be provided by the ESWG and other SPP staff contacts.

For load forecasts for entities outside of the SPP footprint, publicly available data will be utilized as the source of the load forecast, where available. Where not available, publicly available information on projected load growth will be extrapolated to develop a good representation for load expected in the study timeframe. Hourly load profiles will be time-synchronized to the wind generation data to the extent possible.

III. Futures and Generation resource forecasts

The Study will be conducted on a set of futures, to be developed through a process with the Strategic Planning Committee (SPC), Economic Studies Working Group (ESWG) and the Cost Allocation Working Group (CAWG). Those futures will be a subset of the futures developed for the ITP Year 20 Assessment (ITP20).

For each of these futures, a resource set will need to be determined to use in the analysis. The resource sets for the futures will be based upon the futures developed for the ITP20 to the extent possible but allowing for any significant resource planning changes since ITP 20. Timewise, ~~F~~for each future, the resources will be taken from the ITP20 resource set, up to the end of the study period for this assessment (2021).

IV. Economic Model Topology

The focus of the Study is to develop a comprehensive, robust and cost-effective transmission expansion plan to meet the requirements of the SPP footprint under various generation futures.

Powerflow models will be required for the Study for both the economic and reliability assessments. The starting point of these powerflow models will be the latest MDWG- information from M~~m~~odels on ~~d~~Demand™, which includes the current projects from the latest STEP. These power flow models will serve as an input into the economic (production) modeling program to develop a market based economic dispatch for the system. See appendix A for a complete list of types of upgrades included in the ITP model.

Comment [drk14]: Is this supposed to be "of demand" or "on hand"?

V. Economic Model Generation

~~V. See section B development of the power flow topology. Generation~~

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The generation parameters (Startup cost, Min up, Min Down, Min/Max Operating Levels, etc.) will be updated as part of ESWG's yearly economic model review as detailed in the ITP Manual.

Comment [drk15]: Should these be max ramp rates rather than mins?

VI. Renewables

Renewable generation in the footprint will be required under various generation futures. Renewable generation allocation requirements will be determined by SPP staff and stakeholders. Renewable generation, for the purpose of this study, includes qualified hydro, wind, solar, bio-fuel, etc.

Certain renewable generation, primarily wind, hydro and solar, operates as energy resources that require generation profiles be developed to model the time-synchronized output curves for individual wind plants as well as for the aggregate wind fleet. These output curves should also be synchronized with load data to preserve statistical relationships between wind output and load. SPP staff will use the National Renewable Energy Laboratory (NREL)'s database of synthetic wind plant output data as the primary input for the wind farm hourly maximum output capabilities used in the Study. This data will be

sent to ESWG to review for the appropriate expected output of the select renewable wind resources. Profiles for any hydro or solar generation data will be developed on an as needed base by the working group. The economic dispatch model should try to realistically model renewable generation curtailment, based on historical market behavior, expected market conditions and reliability requirements.

The expected location of future renewable generation should not be based entirely on the location of current renewable generation and proposed renewable generation in the current interconnection queue. To take into consideration the fact that where additional transmission is built, future renewable generation will likely be developed in the area.

VII. DC Ties

DC ties connect the SPP to the WECC and ERCOT systems. For the base case, SPP will use historical DC tie usage profiles as a best approximation for the respective DC tie. SPP staff will work with DC tie operators to determine the appropriate DC tie profiles to be used in the futures cases developed.

Additionally, the analysis will consider the possibility of adding additional DC ties to the SPP footprint in the analysis. Though not a primary focus for this analysis, this could provide the footprint with greater access to the ERCOT and WECC markets.

VIII. Fuel

The price assumptions for fuels will be a large driver for the Study. A starting point for the base case analysis will be an extrapolation of the current DOE fuel projections with appropriate review and adjustments made by the ESWG.

B. Steady State Analysis ~~– Reliability~~

~~As part of this study, a traditional reliability analysis will be conducted.~~ Being that SPP will implement a day-ahead market with a consolidated balancing authority in the timeframe for this study, a power flow model with a market dispatch under coincident peak load will be developed.

Steady state analysis will be conducted using output from the economic models as a starting reference for load and generation dispatch. These models will be taken to additional engineering tools in order to conduct a limited assessment to determine the underlying impacts. This steady state assessment is detailed in sections below.

I. Load

The load density and distribution for the steady state analysis will be reviewed by the MDWG. Resource obligations will be determined for the footprint taking into consideration what load is industrial, non-scalable type loads and which load grows over time. The MDWG, TWG and ESWG provide collaborative feedback into the determination of this impact.

II. Generation Resources

The generating resources used in the analysis will be added to the powerflow. Each future will contain a different subset of generation resources and correspond to a unique powerflow case. These generating resources will be reviewed by the ESWG and will correspond to the economic analysis conducted for the Study.

III. Steady-State Model Topology

The topology used in the steady state analysis will be the same as that used in the economic model as described in section IV: Economic Model Topology~~section XXX~~. Generally, this topology will include projects with firm commitment and projects that have NTC authorization letters.

IV. Exports/Imports to First Tier

The exports/imports used in the steady state analysis between SPP and neighboring systems will be determined by the economic dispatch model. This economic exchange of energy between neighboring systems will be modeled for the steady state analysis.

V. Market dispatch

The economic models will be used to determine load forecast and generation dispatch for the steady state analysis. The generation will be mapped from the economic model to the reliability power flow model.

Analysis

A. Constraint assessment

To review the existing Nerc ~~list~~ Book of ~~of f~~Flowgates (BoF) and to determine what (if any) ~~flowgates~~ constraints need to be added or deleted from the list of constraints (event file) for the economic model runs to be done as a part of the 10 year analysis. The ~~flowgate~~ constraint study should determine what additional ~~flowgates~~ constraints are needed in the 10 year models with the additional load and resources. The following will serve as guidelines for the analysis.

- The initial ~~flowgate~~ constraint list will be the then-current ~~NERC Book of Flowgates (BoF)~~ BoF
- ~~Flowgate~~ Constraints studies will be run over 8,760 hours (1 year)
- ~~Flowgate~~ Constraint studies will be performed on each future case
- Contingencies 115 kV and up in SPP
- Monitored elements 115 kV and up in SPP
- Unless other information is available, the ~~flowgate~~ constraint ratings will be selected based upon the ~~Rate~~ Rating A (normal rating) and ~~Rate~~ Rating B (emergency rating) in the powerflow model.
- This analysis will focus on a 10-Year economic model

This analysis will be separated into two parts, one for the Base Case (Business-As-Usual), and one for the Futures cases. This separation will be done because the Base Case should be prepared in advance of the Futures cases. The methodology will be the same for both studies.

B. Economic assessment

Projects (both individually and in groups) will be placed in the economic model, and a full economic assessment will be performed. The results from the analysis will be used to determine benefit metrics. These benefit metrics will be a subset of the metrics used for the ITP20, which will be reviewed by the TWG and ESWG.

Based upon the results, projects and/or groups may be revised in order to optimize the plan. The proposed plans and benefits will be presented to stakeholders for review. Based upon feedback, the projects and/or groups may be revised. Projects from this assessment will be used with the results of the steady state assessment to determine optimal solutions for the footprint. These projects will be the recommended plans for the ITP10 analysis.

C. Steady state assessment

The steady state assessment will use year 10 summer~~s~~ peak and year 10 off peak models using a market dispatch. Each future evaluated will be evaluated with a peak and off peak. New generation identified

in each future will be included in the load flow model. Economic models will be used to develop load and market dispatch for each future. An N-1 contingency analysis will be conducted on each future for the peak and off peak case. All facilities ~~100~~ 69 kV and above in SPP and the first-tier~~the models~~ will be monitored for this analysis in consideration of 100kV and above solutions to the problems identified.

The non-converged contingencies will be reviewed for potential voltage instability assessments that will need to be evaluated. The steady state upgrades that are common to all futures will be determined. Once economic and reliability upgrades have been identified, an FCITC analysis will be conducted using existing ~~market~~ flowgates and a 3% PTDF cutoff factor using each future to determine impacts on existing ~~market~~ flowgates.

A stability analysis will be performed by screening the SPP Transmission System using the ITP 10 Year Summer Case. The methodology that will be used to conduct the stability screening will be to apply a 3 phase fault at a specified primary bus and then trip the branch between it and a secondary bus. Then apply the fault at the secondary bus and then again trip the branch between them. A 3-phase fault of ~~-~~ 2-e^{9} MVA will be applied for a specified duration based on the voltage class. The screening tool will be used to find unstable SPP Member Baseline Generators which are synchronous machines. This methodology will not indentify unstable situations regarding Wind Turbines or other types of asynchronous connections.

Comment [drk16]: What is this supposed to be?

Comment [tlm090517]: Fault magnitude, reformatted.

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D. Solution development

SPP will us a pool of possible solutions to evaluate the economic and reliability upgrades to be used for the ITP 10. This pool of solutions will come from SPP transmission service studies, previous reliability and economic studies, ITP 20 upgrades, and stakeholder input.

A year 5 case will be developed to help with timing of the reliability upgrades. ~~Develop a~~a single plan will be developed that works for all futures and can incorporate the 20 year upgrades.

E. Final reliability assessment

After all economic and reliability upgrades have been identified and inserted into the power flow model, an n-1 contingency analysis will be conducted to identify any remaining outstanding issues. ~~.~~

F. Benefit calculation

Run metrics on the final upgrade set.

Comment [drk18]: This discussion of economic valuation needs to be expanded.

Timeline

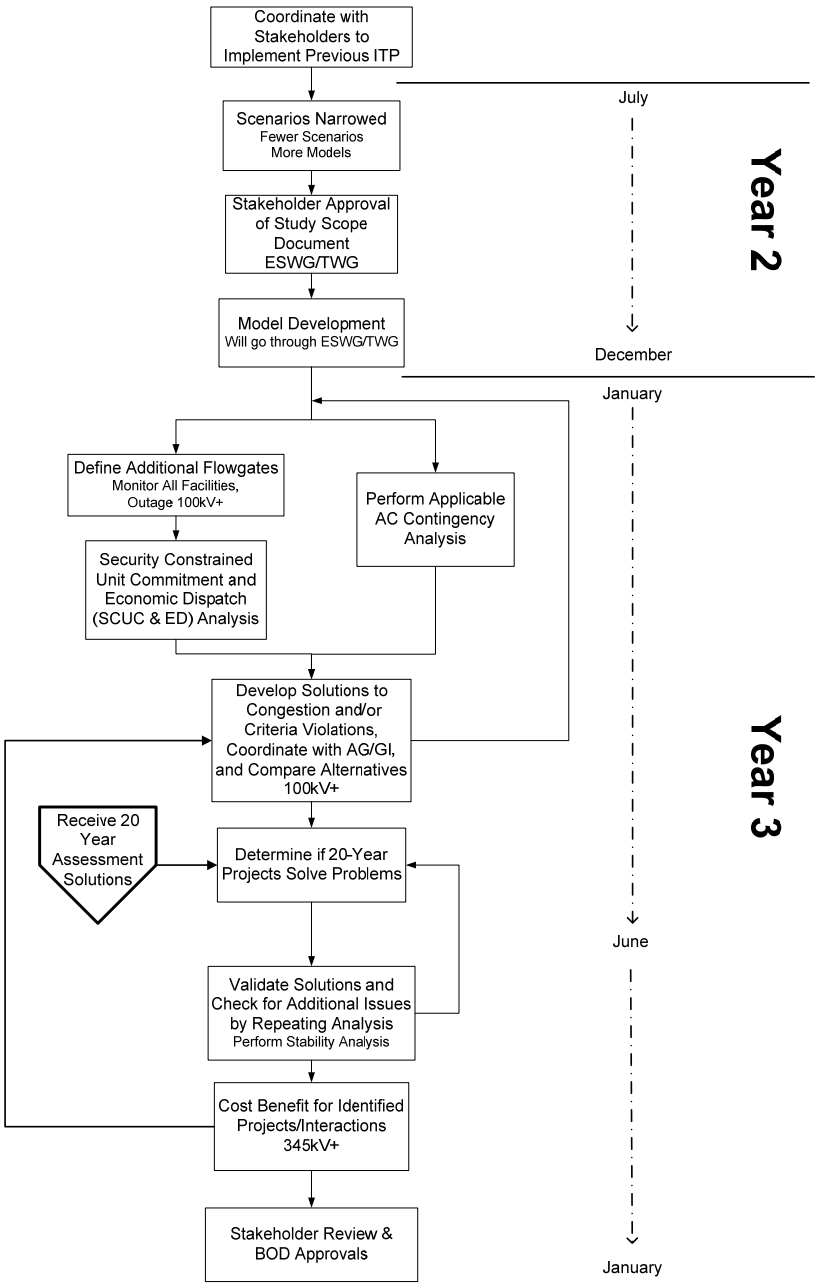
The study will begin in Jan 2011, final results in Jan 2012. Rough timeline is as follows:

Comment [drk19]: Seems to conflict with the dating on the first page and on the diagram next page.

- Model development : Jan 2011 – Feb 2011
- Metric development: Jan 2011
- Constraint assessment: March 2011

- Economic assessment: April 2011 – May 2011
- Reliability assessment: April 2011 – May 2011
- Solution development: June 2011 – August 2011
- Final reliability assessment: September 2011
- Benefit calculation: September 2011

~~10-Year Assessment~~10-year Assessment Process (Initiated Every 3 Years)



Comment [tlm090520]: Fixed formatting

Comment [drk21]: Needs to be connected to the title

Deliverables

A. Report

The results from the ITP Year 10 Assessment will be compiled into a report detailing the findings and recommendations of SPP Staff. This report will be incorporated into the STEP Report that is published on a yearly basis.

B. Recommended Year 10 Plan

This assessment will define a set of transmission upgrades that will be needed to meet the futures defined in this document. From these futures a recommended transmission plan will be developed as detailed in the sections above in this scope. The recommended plan will be focused upon the objective of the Study: To determine the necessary EHV backbone (345 kV and above) required in the 10-year horizon, as well as the necessary underlying upgrades needed to meet SPP Planning Criteria. The assessment will identify a *versatile system* capable of providing a *cost effective deliverability to market solution* for a set range of possible resource futures.

C. Staging and timing of project implementation

The transmission plan that is developed will be reviewed to determine what projects from the ITP20 analysis provide the most immediate benefit to the region. As such, a project implementation plan will be developed for the recommended transmission plan. The plan will provide staging and timing considerations to convey the appropriate order of implementation to be used to realize the recommended plan. ~~Project NTCs will be distributed for projects contained in the recommended ITP10 plan.~~

Comment [drk22]: We have explicit reference here and throughout the scope as to the interaction with ITP20, but very little reference to interaction with the short term plan. Seems like there will be quite a bit of interaction to the short term that should be referenced.

Comment [drk23]: The last sentence seems to definite – ie.e., will we really be issuing NTCs for facilities that are ten years into the future? Or will the NTCs be for the "earliest" projects, or a certain number of years into the future?

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Appendix A

Will include MDWG Model on Demand™ project selection table.

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