



WESTCONNECT REGIONAL TRANSMISSION PLANNING

2020-21 PLANNING CYCLE

DRAFT REGIONAL STUDY PLAN

**DRAFT V3 FOR WESTCONNECT STAKEHOLDER REVIEW
DATED FEBRUARY 13, 2020**

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1.0 Introduction

The first step of the WestConnect Regional Transmission Planning Process (“Planning Process”) is the development of a Regional Study Plan which identifies the scope and schedule of the study work to be performed during the two-year planning cycle (“planning cycle”). This document reflects the WestConnect Study Plan (“Study Plan”) for the 2020-21 planning cycle. **Table 1** below lists the acronyms used in the document.

Table 1. List of Acronyms

Acronym	Meaning
BPM	WestConnect Regional Business Practice Manual
CAS	WestConnect Cost Allocation Subcommittee
FERC	Federal Energy Regulatory Commission
ITP	Interregional Transmission Project
NRS	Nevada Revised Statute
PMC	WestConnect Planning Management Committee
PPA	Planning Participation Agreement
PS	WestConnect Planning Subcommittee
RCT	Reasonable Cost Threshold
RPS	Renewable Portfolio Standard
TO	Transmission Owner
TOLSO	Transmission Owner with Load Serving Obligation
TPPL	Transmission Plan Project List
WECC	Western Electricity Coordinating Council

The WestConnect Planning Management Committee (“PMC”) has overall responsibility for all WestConnect regional planning activities. The Planning Process activities described within this Study Plan will be conducted under the direction of the PMC by the WestConnect Planning Subcommittee (“PS”) and WestConnect Cost Allocation Subcommittee (“CAS”), with input from PMC members and stakeholders, as described in greater detail in subsequent sections of this document.

1.1 Process Background

The Planning Process was developed for compliance with Federal Energy Regulatory Commission (“FERC”) Order Number 1000, Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, (“Order No. 1000”).¹ The Planning Process is performed biennially and consists of seven primary steps as outlined in **Figure 1**.

The Planning Process is in conformance with Order No. 1000 as supplemented by numerous Compliance Filings and resulting FERC Orders. Readers can access the text of the compliance documentation on the WestConnect website,² and are encouraged to consult the compliance documentation and the WestConnect Regional Business Practice Manual (“BPM”) for additional process information. Also, for

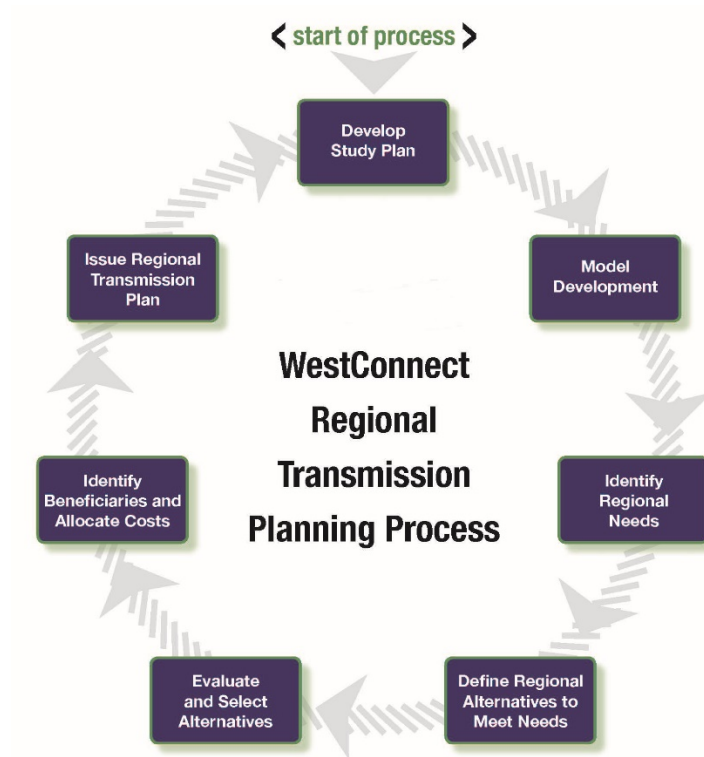
¹ All references to Order No. 1000 include any subsequent orders (see <http://www.ferc.gov/whats-new/comm-meet/2011/072111/E-6.pdf>)

² www.westconnect.com

22 Transmission Owner with Load Serving Obligation (“TOLSO”) members that are jurisdictional to the
23 FERC, their FERC-approved tariff may preside over this document.

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Figure 1: WestConnect Regional Transmission Planning Process



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27 The Planning Process commences in even-numbered years, resulting in the development of a Regional
28 Transmission Plan (“Regional Plan”) every other year. During the first year of the 2-year cycle
29 (“planning cycle”), WestConnect performs system assessments to determine if there are any regional
30 reliability, economic, or public policy needs. If regional needs are identified, WestConnect will solicit
31 alternatives (transmission or non-transmission alternatives (NTAs)) from WestConnect members and
32 stakeholders to determine if they have the potential to meet any identified regional needs. WestConnect
33 will then evaluate those alternatives to determine whether any alternatives meet the identified regional
34 needs, and which alternatives provide the more cost-effective or efficient solution. The more efficient or
35 cost-effective regional projects will be identified in the WestConnect Regional Transmission Plan. Any
36 regional alternatives that were submitted for the purposes of regional cost allocation and selected into
37 the Regional Plan may go through the cost allocation process if they are deemed to be eligible for
38 regional cost allocation. During the last quarter of the process WestConnect will develop and finalize the
39 Regional Transmission Plan Report (“Regional Plan Report”) which will describe the process used to
40 identify regional needs, identify transmission facilities or NTAs selected as the more efficient or cost-
41 effective regional solutions identified regional needs, and document why projects were included or not
42 included in the Regional Plan.

43 Additional details of the WestConnect Regional Transmission Planning Process can be reviewed in the
 44 BPM, which is posted to the WestConnect website.³

45 **2.0 Overview of 2020-21 Regional Transmission** 46 **Planning Activities**

47 **2.1 Schedule**

48 **Table 2** below provides an overview of the expected schedule of activities to be conducted as part of the
 49 2020-21 planning cycle. This schedule is subject to change. Changes to the schedule of activities outlined
 50 below will be noticed on the WestConnect website, emailed to stakeholder lists, and discussed at
 51 committee meetings.

52
 53

Table 2: Tentative Schedule for 2020-21 Regional Planning Cycle

<i>Due Date</i>	<i>Quarter</i>	<i>2020–2021 Activity</i>
February 13, 2020	Q1	Draft Regional Study Plan posted to WestConnect website
February 12, 2020	Q1	WestConnect Stakeholder Meeting to present draft Regional Study Plan
February 27, 2020	Q1	Interregional Coordination Meeting
March 18, 2020	Q1	Final Regional Study Plan approved by PMC
March 31, 2020	Q1	Interregional Transmission Project (“ITP”) submittal deadline ⁴
September 2020	Q3	Regional models finalized
December 2020	Q4	Regional transmission needs posted to WestConnect website
December 2020	Q4	Stakeholder meeting to discuss identified regional needs
January 2021	Q5	Submittal window opens for projects to meet the posted regional needs. Submittal window lasts for no less than 30 days
September 2021	Q7	WestConnect posts listing of projects meeting an identified regional need selected for the purposes of cost allocation
November 2021	Q8	Draft Regional Plan Report posted to WestConnect website
November 2021	Q8	Stakeholder meeting to discuss the draft Regional Plan Report
Three weeks prior to PMC December 2021 meeting	Q8	Stakeholder comments on draft Regional Plan Report due to WestConnect

³ WestConnect BPM: <https://doc.westconnect.com/Documents.aspx?NID=17155&dl=1>

⁴ The timing of this ITP submittal deadline is early in 2020, as opposed to after the PMC’s identification of regional transmission needs, is driven by the fact that the four Western planning regions’ coordination activities require, no later than March 31st, an identification of ITPs submitted into the regional processes of all relevant planning regions. For the WestConnect region, the PMC will not begin evaluating whether an ITP may satisfy an identified regional transmission need in the WestConnect region until after the PMC identifies regional transmission needs at year-end 2020.

<i>Due Date</i>	<i>Quarter</i>	<i>2020–2021 Activity</i>
December 2021	Q8	Final 2020-21 Regional Plan Report posted to WestConnect website

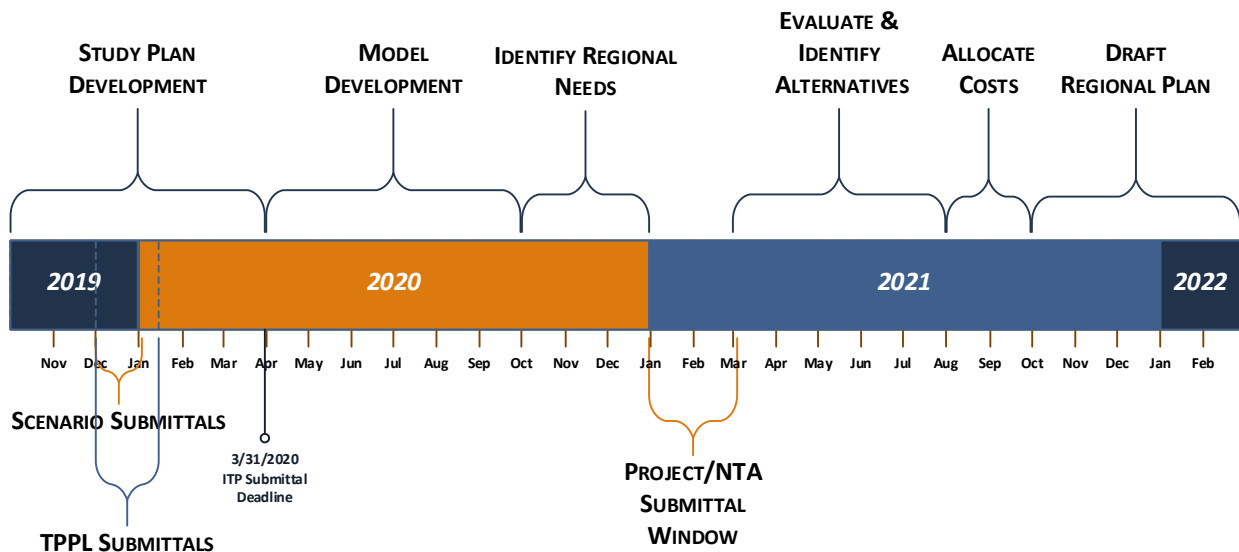
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55 The 2020-21 regional planning cycle timeline is shown in **Figure 2**.

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57

Figure 2: 2020-21 Planning Cycle Timeline



58

59 **2.2 Regional Needs Assessment Background**

60 During Quarters 2 and 3 of the 2020-21 planning cycle, the models that are needed to perform the
 61 regional transmission assessments will be developed as described in this document. The PMC will
 62 conduct an assessment of the region’s transmission needs in the 10-year timeframe, using models
 63 developed for year 2030 Three types of assessments will be performed during the Planning Process:
 64 reliability (steady state and/or transient), economic (production cost), and public policy. The public
 65 policy assessment will utilize the reliability and economic planning tools and models.⁵ Cases from the
 66 Western Electricity Coordinating Council (“WECC”) will be used as seed cases and they will include the
 67 systems of all WECC Transmission Owner (“TO”) entities. These cases are used as the foundation for the
 68 models that WestConnect will develop and use for the regional transmission need assessments.

69 TOLSO members and participants will update the WECC models, as described in more detail below, to
 70 ensure the WestConnect footprint is properly represented.⁶ To the extent WestConnect receives
 71 updated modeling data from TOs outside of the WestConnect planning region during the development of
 72 the regional models, it will be considered and, if appropriate, incorporated into the regional models. The

⁵ Other Public Policy assessment methodologies may be used at the discretion of the PMC.

⁶ All parties participating in the model development process, and several other stages of the WestConnect planning process, are required to execute a non-disclosure agreement (NDA) with WestConnect. The agreement is located here: <https://doc.westconnect.com/Documents.aspx?NID=17191>

73 PMC will approve the WestConnect models prior to their use in the regional needs assessment. The PMC
74 will not evaluate regional transmission needs for systems outside of the WestConnect planning region.

75 After the PS completes the regional transmission assessments (as described in Sections 4.0, 5.0, and 6.0)
76 for the studies included in the scope of this study plan, the PS will identify a list of transmission issues
77 resulting from the studies, and make a recommendation to the PMC as to which, if any, regional issues
78 should constitute economic, reliability, or public policy transmission needs. The process for identifying
79 those regional transmission needs for which a regional transmission solution or solutions is sought and
80 evaluated shall utilize various communication channels with stakeholders, including open PMC and PS
81 meetings, stakeholder meetings, and the development of a Regional Transmission Needs Assessment
82 Report (which will allow for stakeholder comment and input). This report will be delivered to the PMC
83 for review and approval, and it will contain the PS’s recommendation on regional transmission needs for
84 the planning cycle. The regional transmission needs will be finalized pending the PMC’s approval of the
85 report.

86 **Study Area**

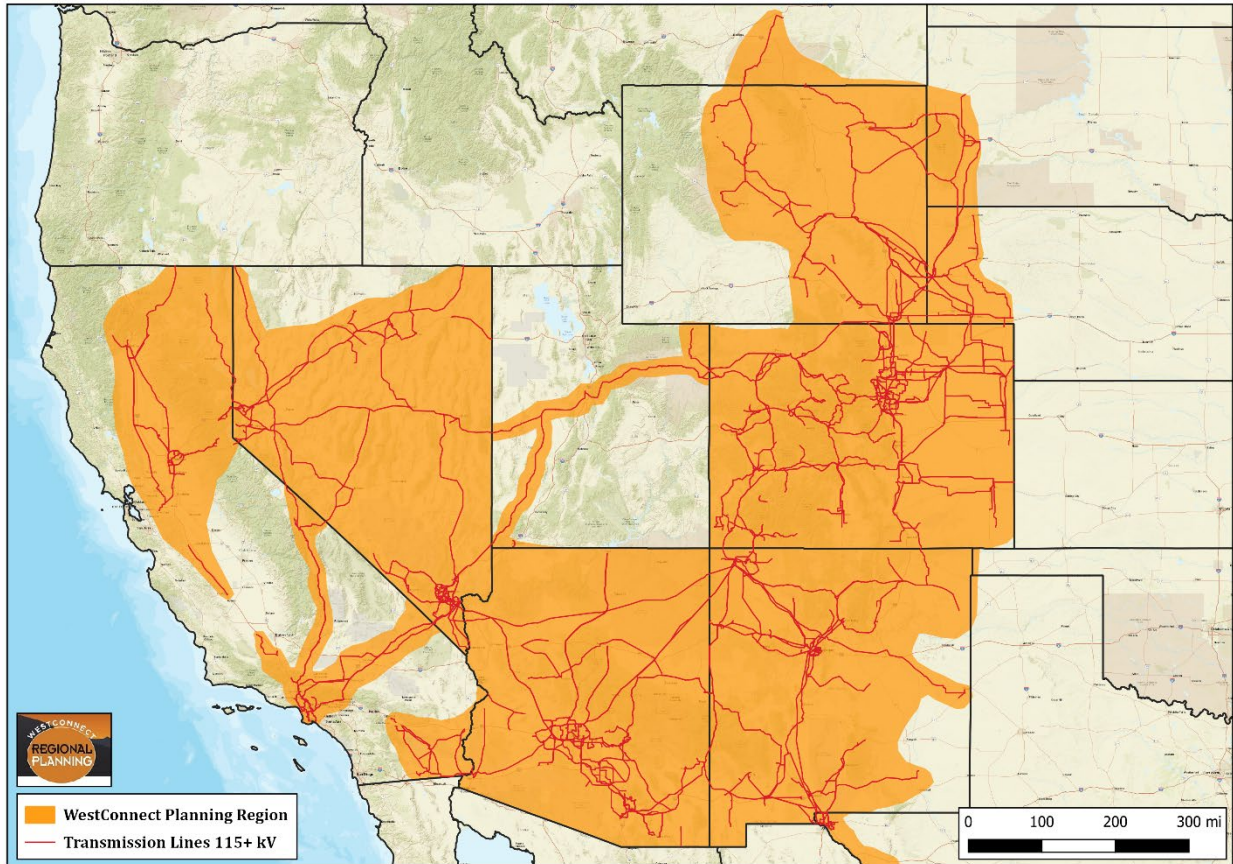
87 The Planning Process evaluates the regional transmission needs of the WestConnect planning region,
88 which is defined as the combined footprints of signatories to the Planning Participation Agreement
89 (“PPA”) within the TOLSO members. TOLSO members participating in the WestConnect 2020-21
90 Planning Process and the systems considered in the regional transmission needs assessment include:
91

- Arizona Electric Power Cooperative, Inc.
- Arizona Public Service
- Basin Electric
- Black Hills Energy
- Colorado Springs Utilities
- Deseret Generation and Transmission Co-operative
- El Paso Electric
- Imperial Irrigation District
- Los Angeles Department of Water and Power
- NV Energy
- Platte River Power Authority
- Public Service Company of New Mexico
- Sacramento Municipal Utility District
- Salt River Project
- Tucson Electric Company
- Transmission Agency of Northern California
- Tri-State Generation and Transmission
- Western Area Power Administration (Desert Southwest, Rocky Mountain, Sierra Nevada)
- Public Service Company of Colorado (Xcel Energy)

92 WestConnect does not conduct FERC Order 1000 regional transmission needs assessments for non-
93 members. The approximate footprint of TOLSO members and other TOs participating in WestConnect is
94 shown in **Figure 3**.

95

Figure 3: Approximate Footprint of WestConnect TOLSO Members and Participating TOs



97

98 The following PMC Members from the Independent Transmission Developer Member Sector and Key
99 Interest Group also participate in the planning effort:

100

- American Transmission Company
- Black Forest Partners
- Southwestern Power Group
- TransCanyon
- Western Energy Connection, LLC
- Xcel Western Transmission Company
- Natural Resources Defense Council

101 **Local versus Regional Transmission Issues**

102 For the purposes of the regional transmission needs assessment, a single-system need impacts only the
103 TOLSO-footprint in which it resides. Single TOLSO transmission issues and non-member issues are not
104 within the scope of the Planning Process, and are not considered regional transmission needs. However,
105 for the sake of completeness and study transparency, the Planning Process will include a review of all
106 single-system transmission issues to ensure that in combination, none of the issues are regional in
107 nature and/or co-dependent. Any single-system issues are the responsibility of the affected TOLSO to
108 resolve, if necessary.

109 Regional needs are generally defined by impacts to more than one TOLSO. However, the PMC may
110 determine that in some instances, the multi-TOLSO impacts are local, rather than regional, in nature. In
111 such cases, WestConnect will provide an explanation as to how impacts are classified.

112 **2.3 Opportunities for Stakeholder Involvement**

113 The Planning Process is performed in an open and transparent manner to attain objective analysis and
114 results. WestConnect invites and encourages interested parties or entities to participate in and provide
115 input to the Planning Process at all levels. Stakeholders also have opportunities to participate in and
116 provide input to local transmission plans as provided for in each TOLSO member’s Open Access
117 Transmission Tariff.

118 WestConnect planning meetings are open to stakeholders (with the exception of PMC closed sessions).
119 Stakeholders’ opportunities for timely input and meaningful participation are available throughout the
120 Planning Process. More specifically, WestConnect will accept and consider stakeholder comments on the
121 following reports planned for the 2020-21 planning cycle:

- 122 • Study Plan;
- 123 • Model Development Report;
- 124 • Regional Needs Assessment;
- 125 • Alternative Evaluation (if applicable);⁷
- 126 • Cost Allocation (if applicable);⁸
- 127 • Regional Transmission Plan.

128 In addition, WestConnect will conduct at least two stakeholder meetings per year to update
129 stakeholders on the Planning Process and collect input. Additional meetings may be scheduled as
130 needed. Notice of all stakeholder meetings and stakeholder comment periods will be posted to the
131 WestConnect website.

132 **2.4 Interregional Coordination**

133 WestConnect will coordinate planning data and information with the three other established Planning
134 Regions in the Western Interconnection (California ISO, ColumbiaGrid, and Northern Tier Transmission
135 Group) by:

- 136 • Participating in annual interregional coordination meetings;
- 137 • Distributing regional planning data or information such as:
 - 138 ○ Draft and Final Regional Study Plan
 - 139 ○ Regional Transmission Needs Assessment Report
 - 140 ○ List of Interregional Transmission Projects (“ITPs”) submitted to WestConnect
 - 141 ○ Assessments and selection of ITPs into Regional Plan
 - 142 ○ Draft and Final Regional Plan

⁷ The Alternative Evaluation will only occur if a regional need is identified

⁸ Cost Allocation will only occur if a project seeking cost allocation is identified and chosen as the more efficient or cost-effective alternative to meet an identified regional need

- 143 • Sharing planning assumptions if and when requested and subject to applicable
144 confidentiality requirements; and
- 145 • Participating in a coordinated ITP evaluation process, as necessary, when an ITP is
146 submitted to WestConnect as an alternative to meet an identified regional need.

147 The process WestConnect intends to utilize to conduct its interregional coordination activities is
148 described in the WestConnect Regional Planning Process BPM posted to the WestConnect website.

149 **Interregional Transmission Project Submittals**

150 An ITP is defined in the common tariff language developed for the Order 1000 interregional compliance
151 filings as a proposed new transmission project that would directly interconnect electrically to existing or
152 planned transmission facilities in two or more planning regions and that is submitted into the regional
153 transmission planning processes of all such planning regions. If an ITP proponent desires to have their
154 project evaluated to meet an identified regional need, they must submit their project to WestConnect via
155 the WestConnect Regional Project Submittal Form no later than March 31, 2020, at which time they do
156 not need to identify which regional transmission need the project proposes to address. ITP proponents can
157 also have their project evaluated for inclusion in the Base Transmission Plan by participating in the
158 process described in Appendix A.⁹

159 **3.0 Base Transmission Plan**

160 WestConnect creates the regional base transmission plan at the beginning of each planning cycle to
161 establish the transmission network topology that is reflected in the regional planning models for the 10-
162 year timeframe and evaluated in the regional needs assessments. The base transmission plan consists of
163 the “planned” incremental transmission facilities included by TOLSOs in local transmission plans,¹⁰ as
164 well as regional transmission facilities identified in previous regional transmission plans that are not
165 subject to reevaluation.¹¹ It also includes any assumptions TOLSO members may have made with regard
166 to other incremental regional transmission facilities in the development of their local transmission
167 plans. As defined by WestConnect, planned facilities include projects that are expected to be in-service
168 during the approaching 10 years and are required to meet public policy requirements, have a sponsor
169 and are incorporated in an entity’s regulatory filings or capital budget, or have an agreement committing
170 entities to participate and construct. “Conceptual” transmission projects are not included in the base
171 transmission plan.

172 The base transmission plan may also include transmission projects under development by independent
173 transmission companies in the WestConnect planning region, to the extent there is sufficient likelihood
174 associated with these projects to warrant their inclusion in the base transmission plan. A description of
175 the criteria used to identify projects for inclusion can be found in the WestConnect BPM.

176 The base transmission plan is developed using project information collected via the WestConnect
177 Transmission Plan Project List (“TPPL”), which serves as a project repository for TOLSO member and TO
178 participant local transmission plans as well as independent transmission company projects. The TPPL

⁹ Additional details regarding the ITP submittal and evaluation process can be found in the WestConnect Business Practice Manual

¹⁰ Developed in accordance with Order No. 890 local planning processes

¹¹ There were no regional transmission projects identified to meet regional need(s) in the 2018-19 Planning Cycle

179 data used for the 2020-21 planning cycle was based on updates submitted as of January 31, 2020, with
 180 subsequent updates to the data made by members in the following weeks. The list of base transmission
 181 plan projects and details about the process used to identify the 2020-21 Base Transmission Plan are
 182 summarized in Appendix A and Appendix B.

183 **3.1 Summarizing the 2020-21 Base Transmission Plan**

184 As part of the planned activities for 2020, WestConnect intends to create summary information
 185 regarding the base transmission plan. The summary information will be developed using data in the
 186 TPPL and will include summary information regarding 2020-21 Base Transmission Plan, such as:

- 187 • Cost information;
- 188 • Line mileage information;
- 189 • Voltage information;
- 190 • State-level summaries;
- 191 • Information on how the 2020-21 Base Transmission Plan has changed as compared with the
 192 2018-19 Base Transmission Plan, including a list of projects that have gone into service, new
 193 projects added to the Base Transmission Plan, and other summary statistics.

194 The base transmission plan summary information will be included in the 2020-21 Model Development
 195 Report, which is scheduled to be completed by the end of Q3, 2020. When the 2020-21 Regional Plan
 196 Report describes the planned projects in the region, this summary information will be used and, if
 197 necessary, updated to include any additional regional projects selected into the plan as the more
 198 efficient or cost-effective solution to a regional need.

199 **4.0 Regional Reliability Assessment**

200 The regional reliability needs assessment will be performed on power flow models developed by
 201 WestConnect. The study cases to be used for the regional reliability assessment are summarized in
 202 **Table 2**, below.

203 **Table 2: Power Flow Cases for Regional Reliability Assessment**

WestConnect Base Case Name	Case Description	Seed Case
2030 Heavy Summer	Summer peak load conditions during 1500 to 1700 MDT, with typical flows throughout the Western Interconnection.	WECC 2030 Heavy Summer 1 ADS Planning Base Case (30HS1)
2030 Light Spring	Light load conditions during 1000 to 1400 MDT in spring months of March, April, and May with solar and wind serving a significant but realistic portion of the Western Interconnection total load. Case includes renewable resource <i>capacity</i> consistent with any applicable and enacted public policy requirements.	WECC 2030 Light Spring 1-S Base Case (30LSP1S)

204 The process and scope for regional model development the regional reliability assessment is described
205 further in this section. The models will be developed during Quarters 2 and 3 of the planning cycle. The
206 PMC will approve the regional power flow models and contingency list at the end of Q3 before they are
207 used to assess regional reliability transmission needs. The regional reliability assessment will take place
208 in Quarter 4.

209 **4.1 Model Development Process**

210 WestConnect will review and modify WECC seed cases¹² identified in this study plan through
211 coordination with Subregional Planning Group (SPGs) and TOLSO members.¹³

212 After collecting initial updates through the process described above, WestConnect will compile the
213 regional power flow models through a phased approach:

- 214 1. Review and revise WECC power flow base case topology, including transmission lines,
215 transformers, connectivity, reactive devices and corresponding power flow data. These changes
216 do not include load magnitudes and resource levels or status.
- 217 2. Review and revise interchange flows and schedules, iterating between any loads and resources
218 revisions.
- 219 3. Provide remedial action schemes (RAS) and contingency definitions based on modeled
220 topology.¹⁴

221 The process utilized for model development, including coordinating with the TOLSO members,
222 independent transmission developers, and other stakeholders in the development of these cases, will be
223 conducted and managed by the planning consultant at the direction of the PS. Once the cases have been
224 vetted, the PS will initiate the regional reliability assessment.

225 **4.2 Key Assumptions**

226 In developing the models for use in the regional reliability assessment, WestConnect must make a
227 number of assumptions as it relates to generation, transmission, and load modeling. Descriptions of the
228 assumptions that will be used in developing the study cases are provided below:

- 229 • **Transmission Assumptions** – Existing transmission system plus 2020-21 Base Transmission
230 Plan, with TOLSO members confirming the inclusion/exclusion of projects through the process
231 described above. As defined by WestConnect, planned facilities include projects that are
232 expected to be in-service during the approaching 10 years and are required to meet public
233 policy requirements, have a sponsor and are incorporated in an entity’s regulatory filings or
234 capital budget, or have an agreement committing entities to participate and construct.
- 235 • **Demand Forecasts** – Provided by TOLSO members and embedded in WECC seed cases, specific
236 to season and condition of study case. May be updated as necessary by TOLSO members.

¹² The regional power flow models will be developed in a format accessible by users of the GE PSLF, Siemens PTI PSS/E, or PowerWorld Simulator power flow applications.

¹³ The WestConnect Subregional Planning Groups consist of the Southwest Transmission Planning Group (SWAT), the Sierra Subregional Planning Group (SSPG), and the Colorado Coordinated Planning Group (CCPG).

¹⁴ When submitting contingencies, PSLF or PowerWorld users should use the WECC RAS and Contingency File Format while PSS/E users should use “CON” files or spreadsheet format.

- 237 • **Generation Projects** – Existing and planned generation facilities, with sufficient generation
238 modeled to meet any enacted public policy requirements. Specifically, generation consistent
239 with each utility’s plan for changes in its resource mix to meet changes in anticipated load
240 through an integrated resource planning (IRP) or similar process. The governance for these
241 resource plans varies by the type of utility (PUC regulated, municipal, cooperative), but in all
242 cases should be open, rigorous, and prescriptive.
- 243 • **Public Policy Requirements** – If not otherwise captured in renewable generation modeling,
244 enacted public policies are to be reflected in the study cases.
- 245 • **Major Path Flows and Interchange** – Path flows and interchange will be established based on
246 the generation, load, and system condition being modeled in the study case.
- 247 • **Operating Procedures** – Any special operating procedures required for compliance with NERC
248 reliability standards will be considered and included in the power flow cases.
- 249 • **Protection Systems** – The impact of protection systems including RAS required for compliance
250 with NERC reliability standards will be included in the power flow cases.
- 251 • **Control Devices and Reactive Resources** – Any special control devices or reactive resources
252 will be included in the power flow cases, including shunt capacitors/reactors, static var
253 compensators, synchronous condensers and other voltage control devices.
- 254 • **Contingency List** – Participants will provide the contingency list in the WECC RAS and
255 Contingency Format (available in GE PSLF and PowerWorld Simulator). A list of contingencies to
256 be studied will be developed by the TOLSO members and SPGs and provided to the PMC
257 concurrent with the final review of the base cases. The PS along with the PMC can add to the list
258 if needed. To minimize flagging of local issues, contingencies will be limited to N-1 contingencies
259 for elements 230-kV and above, generator step-up transformers for generation with at least 200
260 MW, and specific member-requested N-2 contingencies. If a participant provides justification as
261 to why lower voltage contingencies might impact the system in a regional manner, the PS may
262 decide to include those contingencies.

263 4.3 Study Methodology and Criteria

264 An assessment of the WestConnect regional power flow cases will be conducted to ensure the
265 WestConnect planning region as a whole is in compliance with applicable North American Electric
266 Reliability Corporation (NERC) standards and WECC regional criteria for the 2030 planning horizon. The
267 assessment will include steady state contingency analysis and transient stability analysis. The following
268 standards and criteria are applicable for the assessment:

- 269 • Table 1 Planning Events from NERC TPL-001-4 Transmission System Planning Performance
270 Requirements;¹⁵ and
- 271 • WECC TPL-001-WECC-CRT-3.2 Transmission System Planning Performance.¹⁶
272

¹⁵ <http://www.nerc.com/files/TPL-001-4.pdf>

¹⁶ <https://www.wecc.org/Reliability/TPL-001-WECC-CRT-3.2.pdf>

273 Transmission elements of 100 kV and above will be monitored for performance along with any TOLSO
274 member specified lower voltage Bulk Electric System (BES) elements.

275 **Steady State Contingency Analysis**

276 Power flow contingency analyses will be performed for all power flow areas within the WestConnect
277 planning footprint. More specifically, the assessment will evaluate performance of the regional system
278 under Normal system conditions consistent (TPL Category P0) with normal ratings and voltage ranges
279 and under certain emergency system conditions and planning event contingencies (TPL Category P1, P2,
280 P4, P5 and P7) with appropriate post-contingency ratings and voltage range at 20 seconds post-
281 disturbance.¹⁷ The power flow solution options will only enable control systems reasonably able to
282 intervene within 20 seconds, meaning that SVC Control will be enabled while the other control options
283 (Switched Shunt Control, LTC Transformer Control, and Phase Shifter Control) will be disabled.

284 **Transient Stability Analysis**

285 The transient stability performance of the regional system will be studied consistent with the standards
286 and criteria provided above to identify any occurrences of under frequency load shedding, sufficient
287 frequency recovery (e.g. undamped oscillations), and general instability (e.g., cascading trips). WECC
288 criterion will be used to define acceptable voltage recovery and system performance within the first 30
289 seconds post-disturbance.

290 WestConnect members will be invited to submit specific contingencies for inclusion in the transient
291 stability analysis. These contingencies will be limited to those that may have a regional impact, including
292 but not limited to major generator and transmission trips with and without faults.

293 **4.4 Regional Reliability Needs**

294 When conducting the regional reliability assessment, violations of standards or criterion creating
295 reliability issues that the PMC determines to be regional in nature will be identified as a regional
296 reliability need. By definition, regional reliability needs are identified by reliability issues that impact
297 more than one TOLSO member system. Specifically, in the event a simulated outage produces one or
298 more NERC TPL violations in more than one TOLSO member system, those violations may result in the
299 identification of a regional reliability-driven transmission need.

300 If a single-system reliability violation is identified, the violation will be referred back to the appropriate
301 TOLSO for resolution. The affected TOLSO will have an opportunity to identify mitigation for the
302 violation, and new data will be accepted (or the violation will remain in the study results). The PS will
303 review the mitigation and make a recommendation to the PMC to include the mitigation in the study.
304 Upon approval by the PMC, the modeling for the mitigation will then be incorporated back into the
305 regional power flow model. Single-system reliability violations typically do not cause a regional
306 reliability-driven transmission need.¹⁸ In the event a simulated outage produces NERC TPL violations in
307 more than one TOLSO member system, that violation will first be referred to the affected TOLSO
308 members and discussed with the PS to determine if the violation is local in nature. However, issues that
309 impact more than one TOLSO member may result in the identification of a regional reliability-driven
310 transmission need. Once finalized, regional reliability needs will be posted to the WestConnect website

¹⁷ P4, P5 and P7 contingencies are optional and must be volunteered by TO members

¹⁸ They may be certain exceptions, such as when a jointly owned contingency causes reliability issues in a single area

311 and described in the Regional Needs Assessment documentation. The PMC will concurrently approve
312 the base models and the results of the regional reliability assessment.

313 **5.0 Regional Economic Assessment**

314 The regional economic needs assessment will be performed using a production cost model (PCM)
315 developed by WestConnect. The cases to be used for the regional economic assessment is summarized in
316 **Table 3**, below.

317
318

Table 3: Production Cost Model Case Summary

WestConnect Base Case Name	Case Description	Seed Cases
2030 Base Case	Business-as-usual, expected-future case with median load and hydro conditions and representation of resources consistent with enacted public policies.	WECC 2030 Heavy Summer 1 ADS Planning Base Case (30HS1) and WestConnect 2028 PCM from 2018-19 planning cycle ¹⁹

319 The process used by WestConnect to develop the regional PCM is described in the following section. The
320 analysis used to perform the regional economic assessment is also included. The models will be
321 developed during Quarters 2 and 3 of the 2020-21 planning cycle. The PMC will approve the regional
322 economic model before it is used to assess regional economic transmission needs. The regional
323 reliability assessment will take place in Quarter 4.

324 **5.1 Model Development Process**

325 The WestConnect 2028 PCM will be reviewed and updated by WestConnect during Quarters 2 and 3 of
326 the 2020-21 planning cycle consistent with the process described below.

327 The PS will initiate and coordinate a review of the data and assumptions contained within the
328 WestConnect 2028 PCM by the WestConnect members, participants, and stakeholders. Once the data
329 and assumptions have been reviewed by the TOLSO members, WestConnect will compile any changes
330 submitted by the TOLSO members to create the 2030 Base Case PCM. Once compiled, the PS will
331 perform a series of initial test and benchmarking studies with the goal of validating the output of the
332 WestConnect 2030 Base Case. Comparisons with historical path flows, typical wind/solar operation,
333 historical generator dispatch, and forward-looking resource and transmission projections will be
334 performed at the discretion of the PS to help vet the PCM results. Comparisons with the WestConnect
335 2030 power flow cases will be used to keep assumptions synced between the reliability and economic
336 models. Once the WestConnect 2030 Base Case has been vetted, the PS will initiate the regional
337 economic assessment. The PS will also develop and conduct sensitivities, as discussed in more detail in
338 Section 5.3.

¹⁹ Several WECC Anchor Dataset (ADS) PCM's may be used, based on PS direction, including the 2028 ADS PCM Phase 1 V2.2 posted 2/28/19, the 2028 ADS PCM Phase 2 V2.0 posted 6/19/19, and the 2030 ADS PCM which may be available in mid-2020.

339 **5.2 Key Assumptions**

340 Specific data and assumptions to be reviewed by the TOLSO members will include, but are not limited
341 to:

- 342 • In general, any changes needed to make data and assumptions consistent with the 2030 Heavy
343 Summer and Light Spring power flow cases described earlier in the Study Plan;
- 344 • Peak and energy demand forecasts for the planning horizon, including Energy Efficiency (EE)
345 and Distributed Generation (DG);
- 346 • Incremental resources assumed to be used to meet load and public policy requirements within
347 the planning horizon;
- 348 • Incremental transmission facilities modeled within the planning horizon (i.e., the PCM topology
349 must be consistent with the base transmission plan and power flow model topology);
- 350 • Branch switching throughout the year;
- 351 • Fuel price assumptions including carbon;
- 352 • Unit operating characteristics; and
- 353 • Load, resource, and transmission bus assignments to balancing authorities.

354 **5.3 Study Methodology and Criteria**

355 To evaluate the potential for regional economic needs in the WestConnect planning footprint,
356 WestConnect identifies congested elements through forward-looking production cost modeling. Using
357 results from base case model runs and sensitivities, the PS will review metrics such as congested hours
358 and congestion cost for regional transmission elements greater than 100 kV and WECC transfer paths
359 (or other defined interfaces in the WestConnect footprint) along with any TOLSO member-specified
360 lower voltage BES elements.

361 Regional transmission with significant congestion are identified and verified through PS review,
362 historical benchmarking, and follow-up study. Given the regional focus of the Planning Process, the PS
363 will limit their analysis to:

- 364 • Transmission (or paths/interfaces) between multiple TOLSO member systems;
- 365 • Transmission (or paths/interfaces) owned by multiple TOLSO members; and
- 366 • Congestion occurring within the footprint of multiple TOLSO members that has potential to be
367 addressed by a regional transmission project or NTA.²⁰

368 **Sensitivities**

369 WestConnect will also conduct sensitivity studies on the 2030 Base Case economic model to better
370 understand whether regional transmission congestion may be impacted by adjusting certain input

²⁰ Congestion within a single TOLSO Member's footprint (and not reasonably related or tied to other TOLSO Member footprints) is out of scope of the regional planning effort and is alternatively subject to Order 890 economic planning requirements.

371 assumptions subject to significant uncertainty. The sensitivity analysis is intended to make relatively
372 minor adjustments that would still remain within the expected future framework of the base models.
373 This sensitivity analysis may include variables such as:

- 374 • Load forecast;
- 375 • Hydro conditions (e.g., wet vs. dry);
- 376 • Natural gas prices;
- 377 • Emissions cost (e.g., CO₂); and
- 378 • Other modeling parameters.

379 By adjusting individual input assumptions subject to uncertainty, the sensitivity assessment will help
380 WestConnect understand how sensitive the economic performance of the Base Transmission Plan is to
381 key variables. The PS will make recommendations to the PMC regarding how sensitivity analysis will be
382 incorporated into the study process.

383 **5.4 Regional Economic Needs**

384 The process to assess congestion will include a vetting of any congested elements to allow the PS to
385 make a determination as to whether congestion issues are regional in nature. After this vetting process,
386 the PS will produce a list of the congested elements that were identified in the base case. The PMC may
387 further evaluate that list of congested elements and determine which should constitute regional
388 economic needs. The objective is to arrive at a set of congested transmission elements that warrant
389 being tested for the economic potential for a regional project solution, recognizing that the presence of
390 congestion does not always equate to a regional need for congestion relief at a particular location. Once
391 finalized, regional economic needs will be posted to the WestConnect website and described in the
392 Regional Needs Assessment documentation. The PMC will concurrently approve the base models and
393 the results of the regional economic assessment.

394 **6.0 Public Policy Assessment**

395 The WestConnect Regional Planning Process is intended to identify regional needs and the more
396 efficient or cost-effective solutions to satisfy those needs. Enacted public policy (e.g., but not limited to,
397 Renewable Portfolio Standards, energy efficiency/demand side management and distributed generation
398 standards, and IRPs) is considered in the Planning Process through its inclusion in the regional planning
399 models. Non-enacted or proposed public policies may be considered as part of the scenario planning
400 process.

401 Enacted public policies are considered early in the Planning Process and are incorporated into the base
402 models through the roll-up of local TOLSO plans and their associated load, resource, and transmission
403 assumptions. The PS has discretion to identify which enacted policies, if any, should be verified through
404 the Planning Process to ensure they are properly represented in the regional base models.²¹
405 Stakeholders, through their participation in the Planning Process, will have the opportunity to provide

²¹ Enacted public policies that are subject to significant uncertainty within the planning horizon are also considered. These types of public policies may be studied through the development of regional scenario models.

406 feedback to WestConnect as it evaluates public policy-driven transmission issues and determines what
 407 issues may constitute regional transmission needs. The PMC, which is charged with identifying regional
 408 public policy-transmission needs for the WestConnect region, will consider a recommendation from the
 409 PS for each of the public policy analyses described in Section 6.2.

410 **6.1 Public Policy Requirements**

411 WestConnect begins the evaluation of regional transmission needs driven by public policy requirements
 412 by first identifying a list of enacted public policies that impact local TOLSO plans in the WestConnect
 413 planning region. The list, below in **Table 4**, summarizes those enacted public policies that will be
 414 reflected in the regional base economic and power flow models.

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Table 4: Enacted Public Policies Incorporated into Planning Process

Enacted Public Policy	Description
Arizona Renewable Energy Standard	Requires IOUs and retail suppliers to supply 15% of electricity from renewable resources by 2025), with a minimum of 30% of the renewable resources provided by distributed generation
California SB100	Requires IOUs and municipal utilities to meet a 60% renewable portfolio standard (“RPS”) by 2030
California SB350	Requires IOUs and municipal utilities to meet a 50% RPS by 2030 and also requires the establishment of annual targets for energy efficiency savings
California AB398/SB32	Requires the California State Air Resources Board to approve a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020 and to ensure that statewide greenhouse gas emissions are reduced to at least 40% below the 1990 level by 2030.
Colorado SB 07-100	Requires IOUs to identify Energy Resource Zones, plan transmission to alleviate constraints from those zones, and pursue projects according to the timing of resource development in those zones
Colorado HB10-1001	Established Colorado Renewable Energy Standard (RES) to 30% by 2020 for IOUs (Xcel & Black Hills)
Colorado SB13-252	Requires cooperative utilities to generate 20% of their electricity from renewables by 2020
Colorado HB10-1365	Requires rate regulated utilities in CO with coal-fired generation to reduce emissions on the smaller of 900 MW of generation of 50% of a company’s coal generation fleet. Full implementation to be achieved by 12/31/2017.
Colorado SB 18-009 (“Energy Storage Rights Bill”)	Protects the rights of Colorado electricity consumers to install, interconnect, and use energy storage systems on their property without the burden of unnecessary restrictions or regulations and without unfair or discriminatory rates or fees.

Enacted Public Policy	Description
<p>Colorado HB 19-1261 and SB 1261 ("GHG Reduction Bills")</p>	<p>HB 19-1261 requires the Air Quality Control Commission ("AQCC") to promulgate rules and regulations for statewide greenhouse gas ("GHG") pollution abatement.</p> <p>Section 1 of SB 1261 states that Colorado shall have statewide goals to reduce 2025 greenhouse gas emissions by at least 26%, 2030 greenhouse gas emissions by at least 50%, and 2050 greenhouse gas emissions by at least 90% of the levels of statewide greenhouse gas emissions that existed in 2005. A clean energy plan filed by a utility is deemed approved if the plan demonstrates an 80% reduction by 2030.</p>
<p>Colorado SB 19-236 ("PUC Sunset Bill")</p>	<p>The primary purpose of this bill is to reauthorize the CPUC, by appropriations, for a seven-year period to September 1, 2026. Reauthorization is required by the sunset process. Additionally, the bill carries numerous requirements for utilities and the CPUC to achieve an affordable, reliable, clean electric system. Included in the bill are requirements to reduce the qualifying retail utility's carbon dioxide emissions associated with electricity sales to the qualifying retail utility's electricity customers by eighty percent from 2005 levels by 2030, and that seeks to achieve providing its customers with energy generated from one-hundred-percent clean energy resources by 2050. The bill also subjects co-ops to Colorado Public Utility Commission rulemaking.</p>
<p>Colorado SB 19-077 ("Electric Vehicles Bill")</p>	<p>The bill enables a regulatory approval process for electric utilities to invest in charging facilities and provide incentive rebates; thus, the investments and rebates may earn a return at the utility's authorized weighted-average cost of capital. Where approved, the costs for the investments and rebates may be recovered from all customers of the electric utility similar to recovery of distribution system investments. Natural gas public utilities may provide fueling stations for alternative fuel vehicles as non-regulated services only.</p>
<p>Colorado HB 18-1270 ("Energy Storage Procurement Act")</p>	<p>Directs the Commission to develop a framework to incorporate energy storage systems in utility procurement and planning processes. See C.R.S. § 40-2-201, et seq. The legislation broadly addresses resource acquisition and resource planning, and transmission and distribution system planning functions of electric utilities. Energy storage systems may be owned by an electric utility or any other person. Benefits include increased integration of energy into the grid; improved reliability of the grid; a reduction in the need for increased generation during periods of peak demand; and, the avoidance, reduction, or deferral of investment by the electric utility</p>
<p>Nevada SB123</p>	<p>To reduce emissions from coal-fired generators, requires reduction of at least 800 MW generation capacity from coal-fired generation plants, addition of at least 350 MW of generating capacity from renewable energy facilities, and construction of at least 550 MW of generating capacity from other types of generating plants by 2020.</p>
<p>Nevada SB374</p>	<p>Requires net metering be available to each customer-generator who submits a request to the company.</p>

Enacted Public Policy	Description
Nevada Renewable Portfolio Standard	<p>The portfolio standard must require each provider to generate, acquire or save electricity from portfolio energy systems or efficiency measures in an amount ²² that not less than specific percentages (listed below) of the total amount of electricity sold by the provider to its retail customers in this State during that calendar year.</p> <ul style="list-style-type: none"> • For calendar years 2015 through 2019, inclusive, 20%. • For calendar year 2020, 22%. • For calendar year 2021, 24%. • For calendar years 2022 and 2023, 29%. • For calendar years 2024 through 2026, inclusive, 34%. • For calendar years 2027 through 2029, inclusive, 42%. • For calendar year 2030 and for each calendar year thereafter, 50%.
Nevada SB146 (2017)	Requires NV Energy to submit a Distributed Resource Plan (DRP) and evaluate all projects for Non-Wires Alternatives
Nevada SB254 (2019)	Sets statewide greenhouse gas reduction goals in line with the 2015 Paris Agreement
Nevada SB299 (2019)	Creates an electric school bus pilot program
New Mexico Efficient Use of Energy Act	Require utilities to include cost-effective EE and DR programs in their resource portfolios and establish cost-effectiveness as a mandatory criterion for all programs.
New Mexico Energy Transition Act (SB 489)	<p>Subject to the Reasonable Cost Threshold (“RCT”), the Energy Transition Act defines renewable energy requirements that are a percentage of a utility’s retail energy sales and the type of utility:</p> <ul style="list-style-type: none"> • By 2020, 20% for public utilities and 10% for cooperatives • By 2025, 40% for public utilities and cooperatives • By 2030, 50% for public utilities and cooperatives • By 2040, 80% for public utilities with provisions associated with carbon free generation • 100% carbon-free by 2045 for public utilities and by 2050 for cooperatives
PNM Commitment to Carbon Free by 2040	Public Service of New Mexico plans to produce 100% carbon free energy by 2040.

²² Is calculated based on number of renewable energy credits; reference Nevada Revised Statute (“NRS”) 704.7821: Establishment of portfolio standard; requirements; treatment of certain solar energy systems; portfolio energy credits; renewable energy contracts and energy efficiency contracts; exemptions; regulations.

Enacted Public Policy	Description
SRP 2020 20% Sustainable Energy Goal	SRP has established a goal that by 2020, SRP will meet a target of 20% of its expected retail energy requirements with sustainable resources. Among them are a diversified resource mix of wind, geothermal, large hydro and low-impact hydro, and solar.
Texas RPS	Texas RPS requires a total renewable capacity of 5,880 MW (which has already been achieved) by 2025 be installed in the state which is in turn converted into a renewable energy requirement. The renewable energy requirements are allocated to load serving entities based on their amount of retail energy sales as a percent of the total Texas energy served.

417

418 **6.2 Study Methodology and Criteria**

419 The regional base models, including both power flow and production cost, will reflect the enacted public
 420 policies identified above. The data to reflect the public policies will be provided by TOLSO members as
 421 the enacted public policies are already reflected in TOLSO members’ transmission plans and generation
 422 data. In some instances, the PS may choose to verify (through spreadsheet based analyses) that the
 423 appropriate load, resources, or transmission are included in the models. Once the models are compiled,
 424 reviewed, and ultimately approved by the PMC, the PS will perform economic and reliability
 425 assessments (as described in Section 4.0 and Section 5.0) using the regional base models to determine if
 426 there are any regional transmission issues. The PS will seek to determine if those issues are related to
 427 enacted public policy and therefore may constitute a public policy-driven transmission need.

428 The second component of the WestConnect regional public policy planning process allows for the PS, in
 429 consultation with stakeholders, to review local TOLSO member public policy-driven transmission
 430 projects and make suggestions as to whether the TOLSO member’s project may constitute a public
 431 policy-driven regional transmission need. As a part of its effort to “roll-up” local transmission plans to
 432 compile the regional base transmission plan, WestConnect will provide stakeholders with a list of public
 433 policy-driven transmission projects that are included in TOLSO members’ local plans. After reviewing
 434 this information, stakeholders are invited to make a recommendation to the PS whether any local public
 435 policy-driven transmission projects may suggest consideration/identification of a regional transmission
 436 need. The PS will consider the suggestion and make a recommendation to the PMC as to whether it
 437 should be identified as a regional public policy-driven transmission need.

438 **6.3 Regional Public Policy-driven Transmission Needs**

439 If any regional public policy needs are identified, the need will be identified and described in the
 440 Regional Need Assessment report and posted to the WestConnect website.

441 **7.0 Solutions to Regional Needs**

442 After the Regional Need Assessment Report is finalized, regional needs will be posted to the
 443 WestConnect website and a project solution submittal window will open. Upon closure of the submittal

444 window, WestConnect will initiate an evaluation of the benefits and costs of the proposed solutions to
445 identify if any is a more efficient or cost-effective regional solution.

446 If no project solutions are submitted, WestConnect will seek to develop solutions to the regional needs.
447 The amount of technical planning rigor dedicated to seeking a WestConnect-developed regional solution
448 will be informed by planning discussions held at the PS and PMC. These discussions and decisions made
449 in investigating potential regional solutions proposed by WestConnect (in the absence of proposed
450 solutions) will be documented in the Regional Plan Report.

451 In the event that no regional transmission needs are identified, the PMC will not collect transmission or
452 non-transmission alternatives for evaluation (as there will be no regional transmission needs to
453 evaluate the alternatives against).

454 **8.0 Scenario Studies**

455 In addition to the regional needs assessment, WestConnect also conducts information-only scenario²³
456 studies that look at alternate but plausible futures. They represent futures with resource, load, and
457 public policy assumptions that are different in one or more ways than what is assumed in the Base
458 Cases.

459 Proposals for scenarios enter into the Planning Process through a 30-day open submittal window, which
460 opens during Quarter 8 of the previous planning cycle. During the open window, stakeholders may
461 provide proposals for specific scenarios they would like for WestConnect to include in its Study Plan for
462 the upcoming planning cycle. The PMC and PS can also develop scenarios for inclusion in the Study Plan.

463 Once the scenario proposals are received, the PS evaluates the scenarios and makes a recommendation
464 (documented through the Study Plan) to the PMC on which ones should be evaluated in the planning
465 cycle. The PS may work with individual requestors to clarify the intent of the scenarios. The PS may also
466 recommend combining scenarios that appear to have common goals, themes, or modeling assumptions.

467 The PMC also has ultimate authority to determine how to treat regional transmission issues that are
468 identified in the information-only scenario studies. They will determine whether an issue identified in a
469 scenario—whether it be reliability, economic, or public-policy based—constitutes additional
470 investigation by the PS. Since the assessment of a scenario is different than an “expected future” base
471 case such assessments may provide useful information for future planning cycles, especially if the
472 scenario appears likely to become an expected future for the region. Also, results from the scenario
473 assessments may help the region identify emerging opportunities for infrastructure (generation,
474 transmission, or otherwise). Any transmission issues that might come to light as a result of the
475 WestConnect scenario assessments are not to be confused with the WestConnect task under Order No.
476 1000 to identify regional transmission needs and to solicit for proposals to more cost effectively or
477 efficiently satisfy such needs. In other words, the WestConnect scenario assessments do not obligate
478 TOLSO members to any responsibility outside the scope of Order No. 1000.

479 WestConnect also provides the opportunity for stakeholders to provide suggestions that might allow for
480 more efficient or cost-effective alternatives to the regional plans. These types of suggestions may be
481 different from the scenarios mentioned above. They may also be different than proposals to meet

²³ The term “scenario” may be used differently in other documents, including the cost allocation section of the common tariff.

482 identified regional needs. These types of suggestions may be submitted at any time, but have the most
 483 potential to contribute to the Planning Process if they are presented through the scenario submission
 484 window. The PMC will consider such suggestions on a case-by-case basis to determine if any such
 485 suggestions warrant analyses, and how to incorporate any analyses into the Planning Process.
 486 Stakeholders submitting such suggestions are expected to provide evidence as to how their proposals
 487 might result in a more efficient or cost-effective regional plan. As with scenarios, the PMC will determine
 488 whether the PS should assess any suggestions.

489 **8.1 Scenarios Received for the 2020-21 Study Plan**

490 WestConnect held an open window from December 2, 2019 through January 3, 2020. **Table 5** below
 491 lists the scenarios received during the open window.

492 **Table 5: Scenarios Received During Open Window**

Requestor	Description/Name
Arizona Public Service (APS)	Committed Uses
Natural Resource Defense Council (NRDC)	Accelerated Demand Response
SunZia Transmission, LLC	NM Heavy Wind Delivery
Transmission Agency of Northern California (TANC)	Low CAISO and Low PNW Resources

493
 494 These scenario requests were reviewed by the PS on January 14, 2020. A representative for each
 495 scenario request provided a presentation to the PS to summarize the request and answer questions. The
 496 PS also made attempts to consultate the requests. Following the meeting, the PS conducted a survey to
 497 collect feedback from members on their preferred scenarios. During the PS meeting on February 11,
 498 2020 the subcommittee reviewed member feedback and further discussed the scenarios and the
 499 number of scenarios that would be appropriate to study. The conversation led to the development of
 500 two (2) scenario cases, which are outlined below and included in this Study Plan.

501 **8.2 Committed Uses Study**

502 The lack of modeling contractual rights to transmission capacity in previous WestConnect production
 503 cost models is a key critique. This scenario will allow the PMC to examine the impacts of modeling these
 504 contracts and potentially allow for improved modeling. WestConnect Members will work to explicitly
 505 model existing contracts – based on OASIS and member-submitted data – for both generator off-take
 506 and transmission uses to determine impacts on WestConnect economic study findings. This may involve
 507 removal or adjustment of certain wheeling charge assumptions.

508 Importantly, only firm long-term (month or longer) commitments that are under contracts should be
 509 included, such that any requests under study or received (and not currently under contract) would be
 510 excluded.

511 The Study Method will be the same as the Regional Economic Assessment described in [Section 5.0](#).

512 **8.3 New Mexico Export Stress Study**

513 The purpose of the New Mexico Export Stress Study is to evaluate the reliability of the WestConnect
514 regional system when power flows east-to-west from New Mexico. The study will be performed using a
515 realistic New Mexico east-to-west export condition from the WestConnect 2030 Base Case production
516 cost model. The export condition will be defined, technically, based on simulation results from the
517 WestConnect 2030 Base Case production cost model filtered for hours in which New Mexico exports
518 high levels of east-to-west flow across WestConnect.

519 The Study Method will be the same as the Regional Reliability Assessment described in [Section 4.0](#).

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521 **Appendix A – Base Transmission Plan Process**

522 To identify transmission projects for inclusion in the 2020-21 Base Transmission Plan, the PS reviewed
523 the transmission project lists submitted to WestConnect by the TOLSO members and participants via the
524 TPPL, inclusive of the project status (e.g., planned, conceptual). All TOLSO member projects designated
525 with a “planned” project status are included in the base transmission plan. As defined by WestConnect,
526 planned facilities include projects that are expected to be in-service during the approaching 10 years
527 and are required to meet public policy requirements, have a sponsor and are incorporated in an entity’s
528 regulatory filings or capital budget, or have an agreement committing entities to participate and
529 construct. Individual members and participants reviewed the TPPL data and provided any necessary
530 updates with regard to the project status.

531 The PS also reviewed the list of non-incumbent projects submitted via the TPPL submittal window to
532 see if any of those projects met the threshold identified by the PMC for inclusion in the base
533 transmission plan. These meetings were open to the public and noticed accordingly. Upon reviewing the
534 project information submitted by the project sponsors, the PS **<Placeholder for the result of reviewing**
535 **non-incumbent projects that warranted inclusion in the base transmission plan - pending further**
536 **review of TPPL data by PS>.**

537 **California ISO Projects**

538 WestConnect received confirmation from the California ISO on January 9, 2020 indicating that all
539 California ISO board-approved transmission projects are represented appropriately in the WECC 2030
540 Heavy Summer Base Case.²⁴

²⁴ The PS did not make any judgment with regard to any interregional aspects of the California ISO board-approved transmission projects. They were not submitted for the purposes of cost allocation.

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Appendix B – Base Transmission Plan

The tables below include the planned projects that are slated for inclusion in the Base Transmission Plan. The tables are organized by SPG.

Independent Developer Base Transmission Plan Projects for 2020-21 Regional Planning Cycle

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Pattern Development	Western Spirit Transmission Project	Planned	345 kV	No	2021

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SWAT Base Transmission Plan Projects for 2020-21 Regional Planning Cycle

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Arizona Public Service	Broadway 230kV Lines	Planned	230 kV	No	2024
Arizona Public Service	Conrail 230kV Lines	Planned	230 kV	No	2023
Arizona Public Service	TS17 230kV Lines	Planned	230 kV	No	2025
Arizona Public Service	North Gila - Orchard 230kV Line	Planned	230 kV	Yes	2021
Arizona Public Service	Stratus 230kV Lines	Planned	230 kV	No	2022
Arizona Public Service	Three Rivers 230kV Lines	Planned	230 kV	No	2023
Arizona Public Service	TS2 230kV Lines	Planned	230 kV	No	2023
El Paso Electric Company	Add 345 kV ring bus to VADO substation. Split Newman 345 kV to Afton_N 345 kV line tapping in-and-out to VADO 345 kV bus.	Planned	345 kV	Yes	2028

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
El Paso Electric Company	Afton North - Airport Transmission Line	Planned	115 kV	Yes	2025
El Paso Electric Company	Afton North Autotransformer	Planned	345 kV	Yes	2024
El Paso Electric Company	Anthony to VADO 115 kV transmission line ckt 3. Created from existing Anthony to Arroyo 115 kV transmission line being tapped in and out of new VADO 115 kV substation.	Planned	115 kV	Yes	2026
El Paso Electric Company	East side loop expansion Phase 2	Planned	115 kV	Yes	2023
El Paso Electric Company	East side loop expansion Phase I	Planned	115 kV	Yes	2024
El Paso Electric Company	Eastside Loop Expansion Phase I	Planned	115 kV	Yes	2024
El Paso Electric Company	Leasburg Substation 33.6 MVA Transformer	Planned	115 kV	Yes	2021
El Paso Electric Company	MOONGATE - Jornada Transmission Line	Planned	115 kV	Yes	2021
El Paso Electric Company	MOONGATE Substation	Planned	115 kV	Yes	2021
El Paso Electric Company	Move Sparks 115/69 kV autotransformer to Felipe substation	Planned	115 kV	Yes	2021
El Paso Electric Company	New Afton_N to VADO 115 kV transmission line.	Planned	115 kV	Yes	2024
El Paso Electric Company	New Anthony to VADO 115 kV transmission line ckt 2	Planned	115 kV	Yes	2026
El Paso Electric Company	New transmission line from VADO 115 kV to Salopek 115 kV ckt 2	Planned	115 kV	Yes	2026
El Paso Electric Company	New VADO 115 kV switching station.	Planned	115 kV	Yes	2028
El Paso Electric Company	NW2 (Verde) Substation 50 MVA Transformer	Planned	115 kV	No	2024
El Paso Electric Company	Patriot Substation Transformer (T2)	Planned	115 kV	Yes	2021
El Paso Electric Company	Pipeline Substation 33.6 MVA Transformer	Planned	115 kV	Yes	2021
El Paso Electric Company	Rio Bosque Substation Transformer (T2)	Planned	Below 115 kV	No	2021
El Paso Electric Company	Rio Grande-Sunset (5600) 69 kV line Reconductor	Planned	Below 115 kV	No	2021

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
El Paso Electric Company	Sparks to Felipe 69 kV to 115 kV line upgrade	Planned	115 kV	Yes	2021
El Paso Electric Company	Uvas Substation 12 MVA Transformer	Planned	115 kV	Yes	2028
El Paso Electric Company	VADO 115 kV to Arroyo 115 kV transmission line ckt 1. Created from existing Anthony to Arroyo 115 kV transmission line being tapped in and out of new VADO 115 kV substation.	Planned	115 kV	Yes	2026
El Paso Electric Company	Wrangler - Sparks Transmission Line Reconductor	Planned	115 kV	No	2021
Los Angeles Department of Water and Power	Add voltage support at Toluca Station	Planned	230 kV	No	2020
Los Angeles Department of Water and Power	Add voltage support in the LA Basin	Planned	138 kV	Yes	2022
Los Angeles Department of Water and Power	Apex-Crystal Transmission Line	Planned	500 kV AC	Yes	2023
Los Angeles Department of Water and Power	Barren Ridge Voltage Support	Planned	230 kV	No	2021
Los Angeles Department of Water and Power	Castaic-Haskell Canyon 230 kV Line 3	Planned	230 kV	Yes	2020
Los Angeles Department of Water and Power	Convert PP1&PP2-Olive 115kV Lines to 230kV Lines	Planned	230 kV	Yes	2022
Los Angeles Department of Water and Power	Lugo-Victorville Upgrades	Planned	500 kV AC	Yes	2021
Los Angeles Department of Water and Power	McCullough-Victorville series cap upgrade	Planned	500 kV AC	No	2024
Los Angeles Department of Water and Power	New Haskell Canyon-Sylmar 230 kV Line 2	Planned	230 kV	Yes	2022
Los Angeles Department of Water and Power	New Receiving Station X	Planned	230 kV	No	2023
Los Angeles Department of Water and Power	New Rosamond Station	Planned	230 kV	Yes	2023

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Los Angeles Department of Water and Power	Reconductor Barren Ridge - Haskell Canyon 230 kV Line 1	Planned	230 kV	No	2022
Los Angeles Department of Water and Power	Re-conductor Rinaldi-Tarzana 230kV Line 1 & 2	Planned	230 kV	Yes	2022
Los Angeles Department of Water and Power	Re-conductor Valley-Rinaldi 230 kV Lines 1&2	Planned	230 kV	Yes	2020
Los Angeles Department of Water and Power	Re-conductor Valley-Toluca 230 kV Lines 1&2	Planned	230 kV	Yes	2022
Los Angeles Department of Water and Power	Scattergood-Olympic Cable B	Planned	230 kV	Yes	2023
Los Angeles Department of Water and Power	Sylmar Filter Replacement	Planned	230 kV	No	2020
Los Angeles Department of Water and Power	Tarzana-Olympic 1A & 1B 138 kV conversion to 230 kV	Planned	230 kV	No	2024
Los Angeles Department of Water and Power	Upgrade CVT and Wave Traps at Victorville Station	Planned	TBD	No	2020
Los Angeles Department of Water and Power	Upgrade Rinaldi 230 kV CBs	Planned	230 kV	Yes	2022
Los Angeles Department of Water and Power	Upgrade Toluca 500/230 kV Bank H	Planned	500 kV DC	Yes	2021
Los Angeles Department of Water and Power	Upgrade Transformer Bank E and F	Planned	230 kV	Yes	2021
Los Angeles Department of Water and Power	Victorville 500/287 kV auto-transformer installation	Planned	500 kV AC	Yes	2020
NV Energy	Arden - Mead 230kV line upgrade	Planned	230 kV	No	2020
NV Energy	Burnham - Fold 138 kV fold into Pebble	Planned	138 kV	Yes	2018
NV Energy	Magnolia second 230/138kV Transformer bank	Planned	230 kV	No	2020
NV Energy	SE2-West Henderson substation	Planned	138 kV	No	2021

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
NV Energy	Swenson 138/12kV Transformer	Planned	138 kV	No	2020
NV Energy	Westside 230kV Switch replacement	Planned	230 kV	No	2020
Public Service Company of New Mexico	Alamogordo Voltage Support Phase II	Planned	115 kV	Yes	2023
Salt River Project	Coolidge - Hayden Reroute 115kV	Planned	115 kV	Yes	2020
Salt River Project	Southeast Power Link	Planned	230 kV	No	2024
Salt River Project	Superior - Silver King 115kV Reroute	Planned	115 kV	Yes	2027
Southwest Transmission Cooperative	Fort.Huachuca - Kartchner Interconnection	Planned	Below 115 kV	No	2021
Southwest Transmission Cooperative	Marana Substation Capacitor Bank	Planned	115 kV	No	2021
Southwest Transmission Cooperative	Schieffelin Project	Planned	230 kV	No	2022
Tri-State Generation and Transmission Association	Clapham SVS	Planned	115 kV	No	2022
Tri-State Generation and Transmission Association	Frontier Reactor Addition	Planned	115 kV	No	2022
Tri-State Generation and Transmission Association	Hernandez 115/69kV T2 Transformer Replacement	Planned	115 kV	Yes	2021
Tri-State Generation and Transmission Association	Rowe 115/24.9kV Transformer Replacement	Planned	115 kV	Yes	2020
Tri-State Generation and Transmission Association	San Ysidro - Torreon Line Conversion	Planned	Below 115 kV	No	2022
Tri-State Generation and Transmission Association	Torreon 115 kV/69 kV Transformer	Planned	115 kV	No	2022
Tucson Electric Power	Catron 345/34.5 kV Substation	Planned	345 kV	No	2021
Tucson Electric Power	Catron Loop-in to Springerville-Greenlee 345 kV line	Planned	345 kV	No	2023

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Tucson Electric Power	Cisne 138/13.8 kV Substation	Planned	138 kV	No	2021
Tucson Electric Power	Corona 138/13.8 kV Substation	Planned	138 kV	Yes	2027
Tucson Electric Power	Craycroft Barril 138/13.8 kV Substation	Planned	138 kV	Yes	2025
Tucson Electric Power	Del Cerro capacitor Banks	Planned	138 kV	No	2020
Tucson Electric Power	DMP 138 kV, Conversion to breaker-and-a-half substation	Planned	138 kV	No	2021
Tucson Electric Power	Gateway 138-kV Transmission Line	Planned	138 kV	Yes	2023
Tucson Electric Power	Gateway 138-kV Transmission Line (phase 2)	Planned	138 kV	Yes	2023
Tucson Electric Power	Gateway 230/138 kV Substation	Planned	230 kV	Yes	2023
Tucson Electric Power	Gateway Capacitor Additions	Planned	138 kV	No	2023
Tucson Electric Power	Gateway to US/Mexico Border 230-kV Transmission Line	Planned	230 kV	Yes	2023
Tucson Electric Power	Greenlee Capacitor Additions	Planned	345 kV	No	2021
Tucson Electric Power	Greenlee Loop-in to Springerville-Vail 345 kV line	Planned	345 kV	No	2023
Tucson Electric Power	Harrison 138/13.8 kV Substation	Planned	138 kV	Yes	2021
Tucson Electric Power	Hartt 138/13.8 kV Substation	Planned	138 kV	Yes	2022
Tucson Electric Power	Hedrick 138/13.8 kV Substation	Planned	138 kV	No	2024
Tucson Electric Power	Hermosa 138kV Switchyard	Planned	138 kV	No	2023
Tucson Electric Power	Hermosa Capacitor Bank Addition	Planned	138 kV	No	2023
Tucson Electric Power	Irvington - East Loop 138 kV Transmission Line	Planned	138 kV	No	2023
Tucson Electric Power	Kantor Capacitor Bank Addition	Planned	138 kV	Yes	2023
Tucson Electric Power	Kino Capacitor Addition	Planned	138 kV	No	2020
Tucson Electric Power	La Canada to Orange Grove 138-kV Line Re-Conductor	Planned	138 kV	Yes	2020
Tucson Electric Power	La-Canada Line Switch	Planned	138 kV	Yes	2020

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Tucson Electric Power	Lago Del Oro 138/13.8 kV Substation	Planned	138 kV	No	2027
Tucson Electric Power	Line 125 Re-conductor & Conversion to Double Circuit	Planned	138 kV	Yes	2029
Tucson Electric Power	Loop-in of Hassayampa to Pinal West 500-kV Line with with existing Jojoba Substation	Planned	500 kV AC	Yes	2021 Q4
Tucson Electric Power	Loop-in of Irvington to Robert Bills 138-kV line with new Sonoran substation	Planned	138 kV	Yes	2021
Tucson Electric Power	Loop-in of Irvington to South 138-kV Line to Sonoran Substation	Planned	138 kV	No	2021
Tucson Electric Power	Loop-in of Irvington to Vail 138-kV Line to Sonoran Substation	Planned	138 kV	Yes	2021
Tucson Electric Power	Loop-in of North Loop to Rancho Vistoso 138-kV Line to Naranja Substation	Planned	138 kV	Yes	2026
Tucson Electric Power	Marana 138/13.8 kV Substation	Planned	138 kV	Yes	2023
Tucson Electric Power	Marana 138-kV Transmission Line	Planned	138 kV	Yes	2023
Tucson Electric Power	Naranja 138/13.8 kV Substation	Planned	138 kV	Yes	2026
Tucson Electric Power	Naranja Capacitor Bank Addition	Planned	138 kV	Yes	2029
Tucson Electric Power	Olson 138/13.8 kV Substation	Planned	138 kV	No	2026
Tucson Electric Power	Orange Grove to Rilito 138-kV Line Re-Conductor	Planned	138 kV	Yes	2020
Tucson Electric Power	Patriot 138/13.8 kV Substation	Planned	138 kV	No	2023
Tucson Electric Power	Point of Interconnection 138kV Switchyard (Rosemont)	Planned	138 kV	Yes	2021
Tucson Electric Power	Rancho Vistoso - Lago Del Oro 138kV Line	Planned	138 kV	No	2027
Tucson Electric Power	Rancho Vistoso to La Canada 138-kV Line Re-Conductor	Planned	138 kV	Yes	2020
Tucson Electric Power	Re-Conductor Canez to Soniota 138-kV Transmission Line	Planned	138 kV	No	2023

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Tucson Electric Power	Re-Conductor Kantor to Canez 138-kV Transmission Line	Planned	138 kV	No	2023
Tucson Electric Power	Re-Conductor Nogales to Kantor 138-kV Transmission Line	Planned	138 kV	Yes	2023
Tucson Electric Power	Sears Wilmot 138/13.8 kV Substation	Planned	138 kV	No	2025
Tucson Electric Power	Sonoran 138/46/13.8 kV Substation	Planned	138 kV	Yes	2021
Tucson Electric Power	Sonoran to Cisne 138-kV Line	Planned	138 kV	No	2021
Tucson Electric Power	Sonoran to Vail 138-kV Line Re-Conductor (was Irvington to Vail)	Planned	138 kV	No	2021
Tucson Electric Power	South Loop 345 kV, Conversion to breaker-and-a-half substation	Planned	345 kV	Yes	2023
Tucson Electric Power	Springerville-Catron 345 kV Circuits 1 and 2 Uprate	Planned	345 kV	No	2023
Tucson Electric Power	Toro - Rosemont 138kV Line	Planned	138 kV	Yes	2021
Tucson Electric Power	Tortolita Capacitor Bank Addition (#2)	Planned	138 kV	Yes	2021
Tucson Electric Power	Tortolita Capacitor Bank Addition (#3)	Planned	138 kV	Yes	2027
Tucson Electric Power	Tucson to El Camino del Cerro 138-kV Line Re-Conductor	Planned	138 kV	Yes	2020
Tucson Electric Power	UofA North 138/13.8 kV Substation (was UA Med)	Planned	138 kV	No	2023
Tucson Electric Power	Winchester to Vail 345kV line uprate	Planned	345 kV	No	2023
Western Area Power Administration - DSW	Bouse – Kofa	Planned	161 kV	No	2023
Western Area Power Administration - DSW	Coolidge - Valley Farms	Planned	115 kV	Yes	2020
Western Area Power Administration - DSW	Dome Tap-Gila	Planned	161 kV	Yes	2020

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Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Western Area Power Administration - DSW	Gila 161 kV substation rebuild	Planned	161 kV	Yes	2020
Western Area Power Administration - DSW	Kofa – Dome Tap	Planned	161 kV	Yes	2021

CCPG Base Transmission Plan Projects for 2020-21 Regional Planning Cycle

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Black Hills Energy	Boone - South Fowler 115 kV line.	Planned	115 kV	No	2021
Black Hills Energy	Desert Cove-Fountain Valley-MidwayBR 115kV line rebuild	Planned	115 kV	No	2020
Black Hills Energy	Hogback 115/69 kVSubstation	Planned	115 kV	No	2021
Black Hills Energy	North Penrose 115/13.2 kV Distribution Substation	Planned	115 kV	No	2021
Black Hills Energy	Nyberg - Airport Memorial 115 kV rebuild.	Planned	115 kV	No	2022
Black Hills Energy	Salt Creek 115/13.2 kV Distribution Substation	Planned	115 kV	No	2021
Black Hills Energy	West Station - Green Horn 115 kV rebuild.	Planned	115 kV	No	2022
Black Hills Energy	West Station - Hogback 115kV	Planned	115 kV	No	2022
Black Hills Power	Lange - Lookout 230 kV rebuild.	Planned	230 kV	No	2021
Black Hills Power	Lange - South Rapid City 230 kV.	Planned	230 kV	No	2020
Black Hills Power	Lookout - Wyodak 230 kV rebuild.	Planned	230 kV	No	2022
Black Hills Power	Rapid City DC Tie RAS Redesign.	Planned	230 kV	No	2020
Black Hills Power	Second 230/69kV Yellow Creek Transformer	Planned	230 kV	Yes	2021

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Cheyenne Light Fuel and Power	East Business Park - Skyline 115 kV Rebuild.	Planned	115 kV	No	2021
Cheyenne Light Fuel and Power	Loop King Ranch - South Cheyenne into West Cheyenne.	Planned	115 kV	No	2020
Cheyenne Light Fuel and Power	Loop North Range - Corlett into West Cheyenne.	Planned	115 kV	No	2020
Cheyenne Light Fuel and Power	Swan Ranch 115 kV Substation	Planned	115 kV	Yes	2021
Platte River Power Authority	Rawhide Unit 1 GSU Replacement	Planned	230 kV	No	2021
Platte River Power Authority	Timberline 230/115kV Transformer T3 Replacement	Planned	230 kV	Yes	2022
Public Service Company of Colorado/ Xcel Energy	Ault-Cloverly 115 kV Transmission Project	Planned	115 kV	Yes	2022
Public Service Company of Colorado/ Xcel Energy	Avery Substation	Planned	230 kV	Yes	2021
Public Service Company of Colorado/ Xcel Energy	CSU Flow Mitigation 115 kV	Planned	115 kV	No	TBD
Public Service Company of Colorado/ Xcel Energy	Gilman-Avon 115 kV Transmission Line and Cap Bank	Planned	115 kV	Yes	2022
Public Service Company of Colorado/ Xcel Energy	Greenwood - Denver Terminal 230kV transmission line	Planned	230 kV	No	2022
Public Service Company of Colorado/ Xcel Energy	Mirasol Switching Station 230kV (Formerly Badger Hills)	Planned	230 kV	No	2022
Public Service Company of Colorado/ Xcel Energy	NREL Substation	Planned	115 kV	No	2020
Public Service Company of Colorado/ Xcel Energy	Shortgrass - Cheyenne Ridge 345 kV transmission line	Planned	345 kV	No	2020
Tri-State Generation and Transmission Association	Burlington - Burlington (KCEA) 115kV Line Rebuild	Planned	115 kV	Yes	2022

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Tri-State Generation and Transmission Association	Carey T2	Planned	230 kV	No	2021
Tri-State Generation and Transmission Association	Del Camino - Slater Line Uprate	Planned	115 kV	No	2021
Tri-State Generation and Transmission Association	Erie 230 kV Tie Project	Planned	230 kV	No	2023
Tri-State Generation and Transmission Association	Falcon-Midway 115 kV Line Uprate Project	Planned	115 kV	Yes	2022
Tri-State Generation and Transmission Association	Fuller 230/115kV Transformer #2	Planned	230 kV	Yes	2023
Tri-State Generation and Transmission Association	J.G. Kalcevic	Planned	115 kV	No	2020
Tri-State Generation and Transmission Association	La Junta (TS) 2nd 115/69kV, 42 MVA XFMR	Planned	115 kV	Yes	2022
Tri-State Generation and Transmission Association	Rolling Hills Substation	Planned	115 kV	Yes	2025
Tri-State Generation and Transmission Association	San Luis Valley-Poncha 230 kV Line #2	Planned	230 kV	Yes	2025
Tri-State Generation and Transmission Association	Shaw Ranch Substation	Planned	115 kV	Yes	2025
Tri-State Generation and Transmission Association	Sisson Project	Planned	115 kV	No	2020
Tri-State Generation and Transmission Association	Wayne Child Phase II - (Formerly Arrow Transmission Project)	Planned	345 kV	Yes	2022
Tri-State Generation and Transmission Association	White Rock 115/34.5kV Transformer #2	Planned	115 kV	Yes	2020
Tri-State Generation and Transmission Association	Whiterock T2 DP Modifications	Planned	115 kV	No	2020

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
Western Area Power Administration - RMR	Big Horn Transmission Improvement	Planned	115 kV	Yes	2022
Western Area Power Administration - RMR	Blue Mesa	Planned	115 kV	Yes	2025
Western Area Power Administration - RMR	Estes-Flatiron 115-kV rebuild	Planned	115 kV	Yes	2022
Western Area Power Administration - RMR	Midway KV1A Replacement	Planned	230 kV	Yes	2021
Western Area Power Administration - RMR	Pole Creek Tap	Planned	230 kV	Yes	2027
Western Area Power Administration - RMR	Sand Creek Tap	Planned	115 kV	Yes	2024
Western Area Power Administration - RMR	Stegall Bus Sectionalization	Planned	230 kV	Yes	2024

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SSPG Base Transmission Plan Projects for 2020-21 Regional Planning Cycle

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
NV Energy	Bannok capacitor	Planned	115 kV	No	2020
NV Energy	Bell Creek Capacitor	Planned	115 kV	No	2020
NV Energy	California – Bordertown 120kV Line	Planned	115 kV	Yes	2019
NV Energy	California Substation upgrade	Planned	115 kV	Yes	2022
NV Energy	Dixie Meadows I	Planned	230 kV	Yes	2021
NV Energy	East Tracy - Valmy 3422 Line Wavetrapp Removal	Planned	345 kV	Yes	2018

Sponsor	Project Name	Development Status as of February 2020	Voltage	In 2018-19 Regional Transmission Plan?	In-Service Date
NV Energy	Mira Loma Transformer #1 and #2 Rating Increase	Planned	345 kV	Yes	2020
NV Energy	Replace Wave Traps on Valmy - Coyote - Humboldt 345kV	Planned	345 kV	No	2020
NV Energy	Replace Wave Traps on Valmy-Coyote-Humboldt 345 kV Line	Planned	345 kV	Yes	2020
NV Energy	Silver Lake 120 kV Capacitor Bank	Planned	115 kV	Yes	2021
NV Energy	West Tracy - Patrick Line	Planned	115 kV	No	2020
NV Energy	West Tracy 345/120kV 280 MVA transformer	Planned	345 kV	No	2020
NV Energy	Wild Horse 120kV	Planned	115 kV	Yes	2021
Sacramento Municipal Utility District	Hurley - Procter 230 kV Line Re-conductor	Planned	230 kV	Yes	Summer 2021
Sacramento Municipal Utility District	Hurley 230 kV bus-tie breaker	Planned	230 kV	Yes	2020
Western Area Power Administration - SNR	Install 230 kV Reactive Voltage Support	Planned	230 kV	Yes	2018
Western Area Power Administration - SNR	Reconductor Keswick-Airport-Cottonwood 230 kV Lines	Planned	230 kV	Yes	2018
Western Area Power Administration - SNR	Reconductor Olinda-Cottonwood #1 & #2 230 kV Lines	Planned	230 kV	Yes	2017

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558 **Appendix C – Other Regional Planning Process**
 559 **Activities**

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 561 The PMC will identify transmission developers eligible to utilize cost allocation developed in the
 562 Regional Planning Process using the Transmission Developer Qualification Criteria. Transmission
 563 developers seeking eligibility for potential designation as the entity eligible to use the regional cost
 564 allocation for a transmission project selected in the Regional Plan for purposes of cost allocation
 565 must submit to the PMC information as specified in the tariff of each TOLSO member. The submittal
 566 window for this information as part of the 2020-21 planning cycle will be determined by the PMC.

567 Once projects have been selected for inclusion in the Regional Plan, WestConnect will select an
 568 eligible transmission developer (as determined by the Transmission Developer Qualification
 569 Criteria mentioned above) to utilize the cost allocation developed for each project selected for the
 570 purposes of cost allocation.

571 Please follow a link listed below to view the Transmission Developer Qualification Criteria and the
 572 developer selection process.

573

WestConnect Enrolled TOLSO Member²⁵	OASIS Link to Tariff
Arizona Public Service Company	http://www.oasis.oati.com/azps/index.html
Basin Electric Power Cooperative	http://www.oatioasis.com/bepw/index.html
Black Hills Power, Inc.	http://www.oatioasis.com/BHBE/index.html
Black Hills Colorado Electric Utility Company, LP	http://www.oatioasis.com/bhct/index.html
Cheyenne Light Fuel & Power Company	http://www.oatioasis.com/CLPT/index.html
Deseret Generation and Transmission	http://www.oasis.oati.com/DGT/index.html
El Paso Electric Company	http://www.oatioasis.com/epe/index.html
NV Energy	http://www.oatioasis.com/NEVP/index.html
Public Service Company of New Mexico	http://www.oatioasis.com/pnm/index.html
Tri-State Generation and Transmission	https://www.oasis.oati.com/tsgt/index.html
Tucson Electric Power Company	http://www.oatioasis.com/tepc/index.html
UNS Electric, Inc.	http://www.oatioasis.com/UNST/index.html
Xcel Energy – Public Service Company of Colorado	http://www.oasis.oati.com/psco/index.html

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²⁵ Tri-State Generation and Transmission and Basin Electric Power Cooperative have revised tariffs pending FERC approval.