



# NTTG 2019 Economic Study Request

## Draft Study Plan

### Background

The NTTG Regional Economic Study Request (ESR) window provides stakeholders with the opportunity to request NTTG to model the ability of specific upgrades or other investments to the Transmission System or Demand Resources, not otherwise considered in the Local Transmission Plans of the NTTG Transmission Providers, to reduce the overall cost of reliably serving the forecasted needs of the NTTG Footprint.

In Quarter 5 of the NTTG 2018-2019 Biennial Study cycle, Deseret Power on behalf of the “Joint Parties” (Utah Association of Energy Users, Deseret Power, Utah Municipal Power Agency, Utah Department of Commerce Office of Consumer Services and Utah Associated Municipal Power Systems) submitted an [ESR](#) to evaluate up to two 345 kV transmission lines as a lower cost alternative to Gateway West and Gateway South.

Link to the 2019-Q5 ESR: [Joint Parties Economic Study Request](#)

### Study Objective

The Joint Parties requested that a lower cost transmission alternative be studied, that reliably meets the projected 2028 loads and resources submitted by NTTG members for the NTTG footprint. With wind resource additions projected to cause transmission constraints in the Wyoming area, it is requested that a more targeted transmission solution consisting of 345 kV transmission line additions through the immediate congestion area be developed and evaluated as a lower cost alternative to Gateway West and Gateway South. Targeting the transmission additions through the congestion area and utilizing the existing 345 kV system voltage class (rather than introducing a higher cost 500 kV solution) may result in fewer transmission miles at a lower cost per mile when compared to the dF RTP.

This study request consists of evaluating up to two 345 kV transmission lines, independently originating in a logical location on the east side of the transmission constraint such as the Windstar or Aeolus area of Wyoming and independently terminating at a logical location on the west side of the constraint such as Bridger, Borah or Midpoint as needed to meet reliability criteria. Please identify the minimum amount of 345 kV line additions between these locations that are required to meet reliability criteria, including the use of any transformer additions that may be necessary.

It is also requested that this potential lower cost transmission alternative be evaluated under the scenarios that were studied as part of the Public Policy Considerations request, where additional resources are expected to be retired in the Wyoming area.

## Alternative System Configuration<sup>1</sup>

- Between Aeolus and Anticline (154 Miles)<sup>2</sup>
  - Model as:
    - Two 345 kV circuits
    - Use Gateway West line at 500 kV and add second 345 kV
- Between Anticline and Populus (203 Miles)
  - Two 345 kV lines Series compensated equal to parallel 345 kV circuits
- Between Borah and Hemingway:
  - Populus-Midpoint 345kV (153 Miles) with Series Comp
  - Add Midpoint-Hemingway 345 kV (130 miles) with Series Comp
  - Add Hemingway 345/500 kV (2-700 MVA)

## Base Cases

NTTG cases A, B, C, E, F, G, H, I will be used.

Since Gateway South provides support to the Wasatch Front. Additional cases stressing Populus South path will be developed to test removal of Gateway South.

## Study Methodology

Using same methodology as in the 2018-2019 NTTG Draft Regional Transmission Plan

## Transmission Reliability

Test configuration with full complement of the NTTG contingencies and adjust transmission configuration to achieve acceptable performance. Two circuit segments (Aeolus-Anticline, Anticline-Populus) will be tested to determine if credible N-2 ROW should be avoided.

Use the configuration with the 2029 PPC scenarios to test whether there are segments that could be dropped.

## Economic Evaluation

Capital Cost of the final configuration will be compared with Q4 dRTP configuration using the TEPPC cost calculator and PCM runs will be performed to compare the losses of the Proposed Project configuration with the DRTP.

## Study Schedule

Completed by end of Q7

## Deliverable

The regional Economic Study Report will be incorporated into the Draft Final Regional Transmission Plan and Regional Transmission Plan, vetted with stakeholders and provided to the requesting parties, i.e., the Joint Parties.

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<sup>1</sup> Assuming a bundled 1272 kcm H-frame construction.

<sup>2</sup> Two lines assumed to avoid overloads for outage of the 345 kV lines