Overview of Transmission in New Mexico

Transmission systems are designed to transmit electricity from generators to serve customer load. New Mexico's transmission system is no different. As large amounts of renewable generation, which is produced in areas rich in generation capability but far from major load centers, becomes prevalent transmission systems will have to adapt.

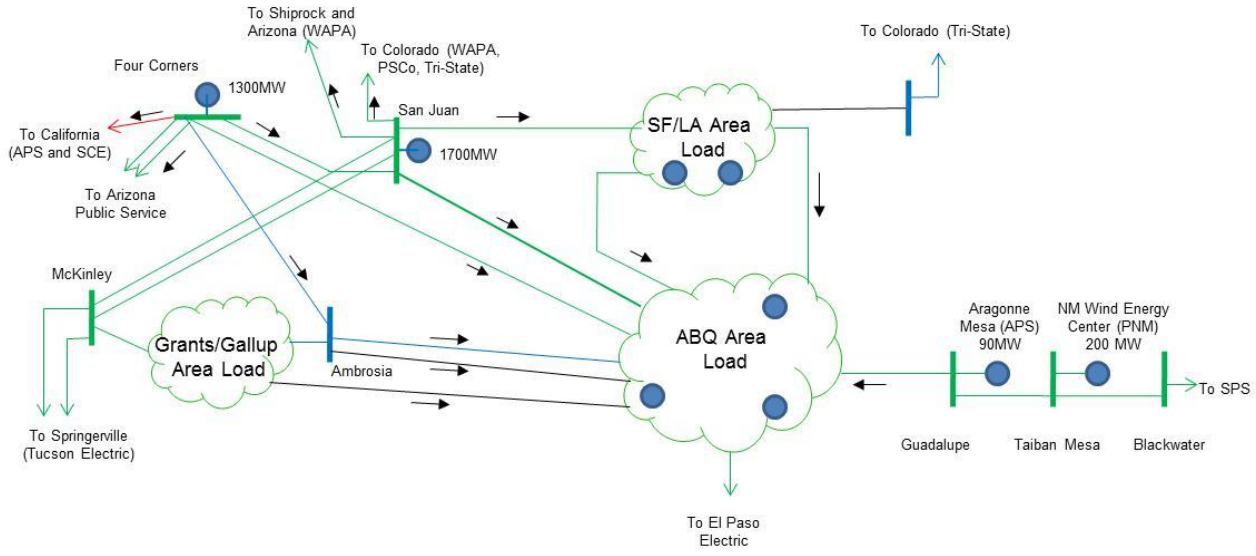
New Mexico's natural resources provide opportunities for large scale electricity production from both renewable and natural gas-fired generation projects. For New Mexico to realize the potential, it needs to develop the infrastructure to transmit energy from its generation sites to large load centers across the nation. The existing transmission system is not designed to provide this service.

Although PNM's transmission system does not serve the entire state (Tri-State, Xcel/SPS (SPS), El Paso Electric also have transmission in New Mexico), it is a significant component of New Mexico's transmission system. The key for any generation developer using New Mexico transmission to market its supply to major load centers in the West is access to Four Corners. Four Corners is a major electricity hub in the Southwest connecting New Mexico with Arizona, California, Colorado and Nevada.

For a generation developer in New Mexico to market its supply to major load centers in Texas and the Midwest, it has to either connect with SPS's transmission system or if connecting to PNM's system, try to get through the 200 MW gateway at Blackwater Substation near Clovis. If connecting to El Paso's transmission system, it has to get through the 200 MW gateway at Eddy Substation near Carlsbad.

PNM's Existing System

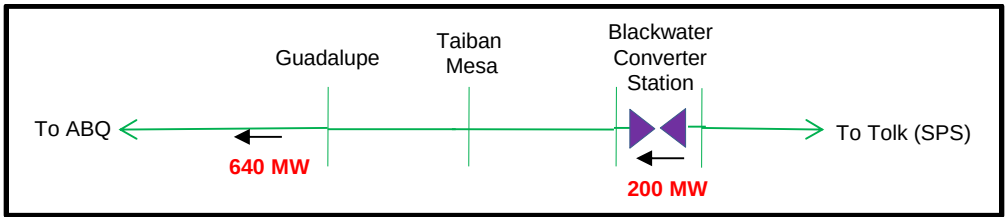
Below is a high level diagram of PNM's existing transmission system



PNM's transmission system can be described as a long transmission corridor from its primary generation supply at Four Corners and San Juan to New Mexico's largest load centers in Albuquerque and Santa Fe/Los Alamos. To the east a long transmission line connects the Albuquerque load center with SPS's transmission system.

The transmission system is limited in its ability to transfer energy based on studies performed by PNM that ensure reliable system operation. This is called "Total Transfer Capability" and it describes the physical limitations of the transmission system. For generation developers in eastern New Mexico that want to interconnect on PNM's system on the 345 kV transmission line between Albuquerque and Texas and access Four Corners, that physical limitation is a constraint.

Below is a diagram of PNM's 345 kV line between Albuquerque and Texas that shows the east-to-west Total Transfer Capability of the line segments. The line is limited to 200 MW from Texas because the Blackwater station that acts as a gateway between Texas and New Mexico is limited to 200 MW. PNM has determined that the Total Transfer Capability of the line is 640 MW, so developers that want to interconnect to the line downstream of Blackwater can do so up to 640 MW total.



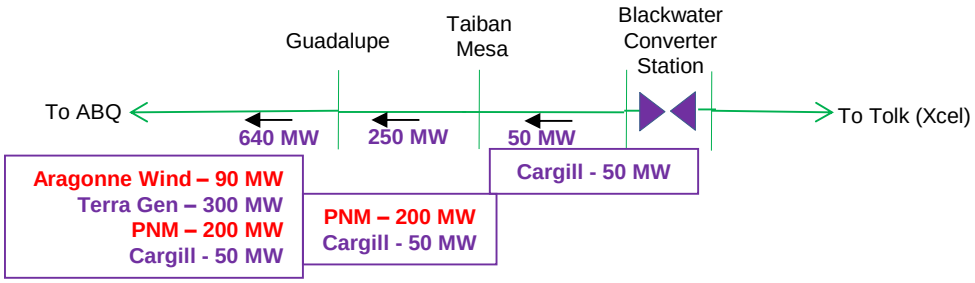
PNM has noted that the Total Transfer Capability of the line downstream of Blackwater can be increased by roughly 400 MW by installing voltage control equipment at Guadalupe.

The second constraint that a developer with a generation project in eastern New Mexico has to face is the ability to acquire Transmission Service from PNM to Four Corners. Transmission Service is contractual right to utilize PNM's transmission capacity consistent with the Total Transfer Capability. Transmission Service is acquired from PNM on a first-come, first-served basis. Requests for Transmission Service on PNM's system to Four Corners are best described as standing room only. The table below summarizes requests for Transmission Service to Four Corners.

Queue Positions	Customer	MW	Notes
1 and 2	Cargill	375	125 MW and 200 MW (BW to FC)
3 and 4	Arabella Wind	300	170 MW and 130 MW (Guad to FC)
5	Cargill	100	BW to FC
6 and 7	Arabella Wind	300	170 MW and 130 MW (Guad to FC)
8 to 18	Berrendo Wind	1,100	11 requests for 100 MW each (ABQ to FC)
19	INVM	70	Storie Lake to San Juan
20 to 24	Iberdrola	500	5 requests for 100 MW each
25 to 28	EnXco	800	4 requests for 200 MW each (Ojo to FC)
29 to 36	EnXco	1,600	8 requests for 200 MW each (ABQ to FC)
37	EnXco	200	Storie Lake to Four Corners
38	EnXco	200	Willard to Four Corners
39 to 40	EnXco	400	2 requests for 200 MW each (ABQ to FC)
41 to 44	EnXco	800	4 requests for 200 MW each (Guad to FC)
45	Terra Gen	300	Blackwater to Four Corners
46 to 60	Power Network New Mexico	1,500	15 requests for 100 MW each (ABQ to FC)
	Total	8,545	

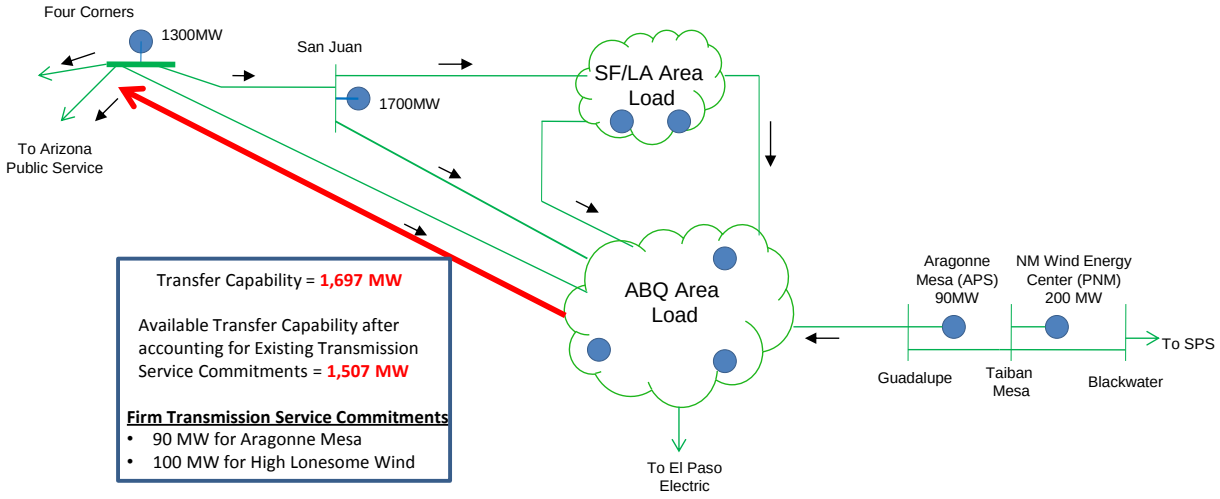
One of the main issues associated with acquiring Transmission Service is that those that have already acquired Transmission Service (which is allotted on a first-come, first-served basis) have the right under FERC's standard Open Access Transmission Tariff (OATT), under which PNM operates, to defer taking service year-to-year up to five years. The result is Transmission Service is over-subscribed while operationally, the transmission capacity is under-utilized. As a result, the "Available Transmission Capacity" (Total Transmission Capacity minus Transmission Service Commitments = Available Transmission Capacity) is nonexistent.

Below is a diagram illustrating PNM's existing Transmission Service commitments on the transmission path from Blackwater to Albuquerque (ABQ).



Note that the Transmission Service commitments highlighted in red are operational today. Those in purple have been deferred. The option to defer on a year-to-year basis is allowed under PNM's OATT for up to five years. Both Cargill and Terra Gen have exercised their options to defer service the last few years. But because entities have acquired the Transmission Service even though they don't use it, the Available Transmission Service is 0 MW (Total Transfer Capability 640 MW minus Existing Transmission Commitments 640 MW = 0 MW) except for when PNM markets Available Transmission Service on a short-term basis.

Below is a diagram of PNM's system illustrating the Total Transfer Capability from Albuquerque to Four Corners and the current Transmission Service commitments currently utilizing that Transmission Service.



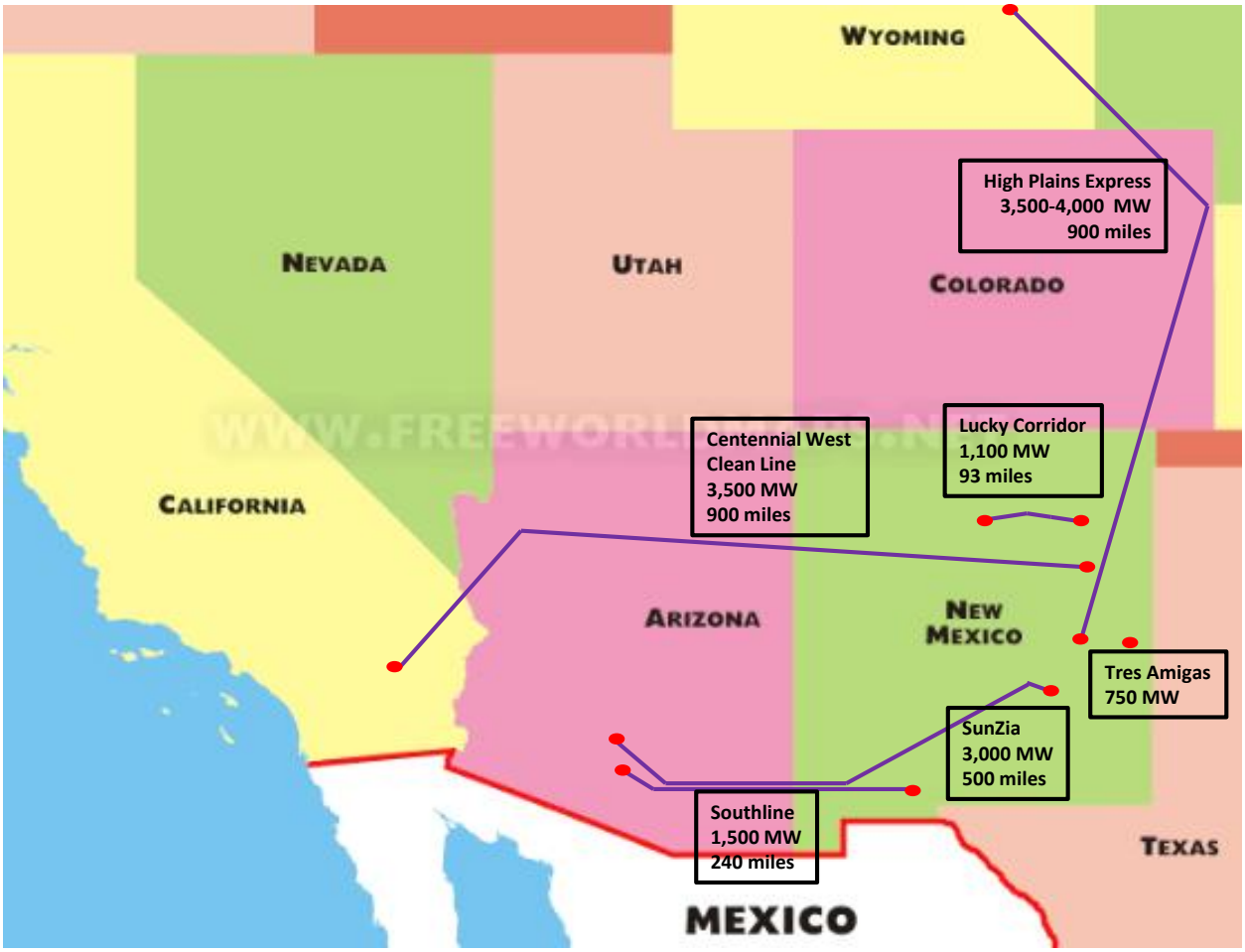
Note that although PNM has 8,545 MW of requests for Transmission Service to Four Corners, only 190MW of the 1,697 MW of Transfer Capability is being utilized. From a contractual perspective, the path is over-subscribed. From an operational perspective the path is under-utilized.

For developers that have generation in eastern New Mexico connecting to PNM's transmission system that want to transfer energy east to Texas, the Total Transfer Capability is again limited to 200 MW (the limit of the gateway at Blackwater).

Independent transmission developers have proposed transmission projects that traverse New Mexico. These include:

1. Lucky Corridor Transmission Line
2. SunZia Transmission Line
3. Tres Amigas Super Station
4. High Plains Express
5. Centennial West Clean Line
6. Southline

The diagram below is a high level illustration of those projects.



Conclusion

The need for transmission in New Mexico is clear. The existing transmission system is not designed for the needs of the 21st century. The approach needs to incorporate existing capabilities melded with proposals for new transmission in an integrated fashion.