Staff Issue Description	Staff Report Reference	Grain Belt Express Response	Galli Surrebuttal Testimony References
Heading: "Whether the proposal is economically feasible"			
RTO Interconnection Studies: MISO Network Upgrades cannot be known at this time.	pp. 22-26	Grain Belt has sufficient certainty that MISO network upgrade costs will not vary significantly from the current estimate [$21 million].	pp. 10-12
RTO Interconnection Studies: SPP Network Upgrades cannot be known at this time.	pp. 26-27	It is unlikely that network upgrade costs in SPP will change from their current estimate [$21.5 million].	pp. 30-31
RTO Interconnection Studies: PJM Network Upgrades cannot be known at this time.	pp. 27-29	PJM network upgrade costs could vary. However system enhancements have occurred to the PJM system which are expected to alleviate any potential need for additional upgrades to the PJM system beyond the current estimate [~$505 million].	pp. 25-27
The level of cost to be incurred from non-subscribing Missourians: MISO network upgrades that are required for the Project could be cost-allocated to Missouri customers.	p. 31	There is no method in MISO to cost-allocate network upgrades for HVDC interconnections. Even if/when MISO develops such a method - which would align with their existing method for generators - the costs to Missouri would be insignificant.	pp. 4-5
Design: The Project's design is not further developed.	pp. 33-34	The Project is at an appropriate level of design based on its remaining required regulatory approval and prudent project management.	pp. 38-39

Staff Issue Description	**Staff Report Reference**	**Grain Belt Express Response**	**Galli Surrebuttal Testimony References**
Operation: No power transfer will occur from the Project to SPP.	pp. 34, 40-41	Power transfers can occur from the Project to SPP. When customers desire this service they will undergo the appropriate study process to acquire the rights to do so.	pp. 32-34
Operation: MISO customers using the Project will have to pay PJM Tariff rate schedules.	p. 35	MISO customers using the Project will not have to pay PJM rate schedules other than those that are specific for service on the Project within the PJM Tariff; this includes Schedules 1 and 1A.	p. 29
Operation: It is unclear how ancillary services will be handled for the Project's AC collector system in Kansas.	p. 35	Ancillary Services on Project facilities, including the AC collector lines in Kansas, are considered within design work and are not separately charged or administered.	pp. 34-35
Operation: Service on the Project from MISO to PJM cannot be studied because there's no process for such a study.	pp. 36, 41	Power can be transferred from MISO to PJM using the Project. One process to accomodate this is the Point-to-Point transmission service process which already exists for service from MISO to PJM and could be applied for the Project. Additionally, the MISO Merchant HVDC Task Team is developing a process that will include rights to withdraw energy from the MISO market.	pp. 13-15
Heading: "Public Interest"			
Impact on reliability and regional planning: The Project would increase reserve margin requirements to preserve existing reliability.	p. 40	The Project will not cause an increase on Missouri's reserve margin requirements.	pp. 35-36

Staff Issue Description	Staff Report Reference	Grain Belt Express Response	Galli Surrebuttal Testimony References
Heading: "Safety"			
Potential effects on nearby utility facilities: Submissions from Grain Belt Express do not clearly address possible harmful effects on existing utilities.	pp. 47-48	The Project has always been described as utilizing DMR conductors. Utilizing a DMR is, and will remain, within the Project design.	p. 40
Potential effects on nearby utility facilities: DMR conductors help address ground current concerns. The CCN should be conditioned on ensuring the Project will have DMR conductors.	pp. 48-49	Grain Belt Express has committed to the condition related to installing a DMR.	p. 41
Potential effects on nearby utility facilities: Lightning or a natural disaster could cause ground currents. The CCN should be conditioned on ensuring the Project has control and protection measures to de-energize the Project within 150 milliseconds.	pp. 49-50	Grain Belt Express has committed to the condition related to de-energizing the Project within 150 milliseconds during faults.	p. 41
Potential effects on nearby utility facilities: The Project should be required to perform studies to identify potential impacts to nearby utilities and determine proper mitigation. The CCN should be conditioned to require that Grain Belt Express perform studies to determine if the Project facilities in Missouri will have adverse impacts on nearby utilities and coordinate with Staff regarding studies and monitoring and mitigation measures.	pp. 50-51	Grain Belt Express has committed to the condition related to study, coordination, and reporting with respect to the Project's potential impacts to nearby underground utilities.	p. 41
Interconnection Studies: Impacts were identified in the PJM System Impact Study. Due to these impacts, it is unclear whether transmission upgrades, a special protection scheme, or a reduction to the Project's capacity in Illinois would be required.	pp. 54-55	Transmission upgrades are already required for the Project's interconnection with PJM. Studies that were performed for the SPP point-of-interconnection did not consider any PJM upgrades.	pp. 26-27

Staff Issue Description	Staff Report Reference	Grain Belt Express Response	Galli Surrebuttal Testimony References
Interconnection Studies: NERC Category C events were not included in the MISO SPA Study.	p. 55	Category C events were modeled in the MISO/Ameren Optional Study and resulted in additional network upgrades.	p. 10
Interconnection Studies: The SPP studies show that the Project causes issues in AEP under certain contingencies. Due to these issues, it is unclear whether a major transmission upgrade, a special protection scheme, or a reduction to the Project's capacity in Illinois would be required.	pp. 55-56	Transmission upgrades, including a "major transmission upgrade" are already required for the Project's interconnection with PJM. Studies that were performed for the SPP point-of-interconnection did not consider any PJM upgrades.	pp. 26-27
Heading: "Additional Concerns"			
Mark Twain: Without Mark Twain or something comparable, the Project will induce thermal overloads in the MISO system.	pp. 56-58	MISO is obligated to identify an alternative to Mark Twain should it not get constructed. In the interim, the MISO market will, as it currently does, properly ensure security of the system.	pp. 15-17
Short Circuit Ratio: A short circuit ratio of 2.0 or less is considered a "weak system" and it is unclear what the short circuit ratio will be at the interconnection of the Missouri HVDC Converter Station.	p. 58	The short circuit ratio for the Project's interconnection in Missouri is multiples of the "rule of thumb" for "weak" grids (2.0). Therefore the grid in Missouri is considered "strong" for the Missouri HVDC Converter Station.	pp. 21-22
Grain Belt and ITC Great Plains, LLC interconnection agreement: Studies have not been performed to determine Control Interaction risks of the Project on other HVDC lines and DC ties in the MISO region.	p. 59	These studies are performed during Design-Level Studies and only impact the equipment characteristics of the Project and would not impact network upgrade cost or scope.	pp. 6-8, 38-39

Staff Issue Description	**Staff Report Reference**	**Grain Belt Express Response**	**Galli Surrebuttal Testimony References**
Grain Belt and ITC Great Plains, LLC interconnection agreement: Screening or actual studies have not been performed to determine whether there will be SSTI risks to generators in Missouri near the Project's interconnection.	pp. 59-60	These studies are performed during Design-Level Studies and only impact the equipment characteristics of the Project and would not impact network upgrade cost or scope.	pp. 6-8, 38-39
Grain Belt and ITC Great Plains, LLC interconnection agreement: A harmonic performance study has not been completed to determine impacts from the Project on the MISO system.	pp. 60-61	These studies are performed during Design-Level Studies and only impact the equipment characteristics of the Project and would not impact network upgrade cost or scope.	pp. 6-8, 38-39