

		Ma	REGIONAL EVENTS	EFFECT IN SITE VICINITY
CENOZOIC		0	Erosion and incision of streams. Deposition of stream terraces. Formation of Cape Fear arch	Erosion and incision of modern streams
		65		
MESOZOIC	JURASSIC	136	Erosion of Appalachians and Piedmont and deposition of Coastal Plain sediments	Deposition of Coastal Plain sediments
	JURASSIC	195	Intrusion of diabase dikes	Intrusion of diabase dikes, and some continued faulting in the Deep River basin
	TRIASSIC	245	Opening of Atlantic basin; extensional tectonics forming rift basins	Formation of Deep River basin, including the Jonesboro and associated faults, and sedimentation associated with rifting
	PERMIAN	286		
PALEOZOIC	CARBONIFEROUS	LATE	<i>Alleghenian Orogenesis</i> : Regional greenschist and amphibolite facies metamorphism, emplacement of plutons, deformation in Raleigh belt, strike-slip faulting	Emplacement of the Rolesville batholith and ductile mylonite shear zones (e.g., Nutbush Creek fault zone)
	CARBONIFEROUS	EARLY	Emplacement of Charlotte Terrane over Inner Piedmont; development of Central Piedmont shear zone	No clear effect in site vicinity
	DEVONIAN	LATE		
	DEVONIAN	MIDDLE		
	DEVONIAN	EARLY	<i>Acadian Orogenesis</i> : High- to medium-grade metamorphism, deformation, Gold Hill dextral shear zone, Brevard fault zone	No clear effect in site vicinity
	SILURIAN	LATE		
	SILURIAN	EARLY	<i>Silurian Orogenesis</i> 40Ar/39Ar hornblende in North Carolina 425 Ma - 430 Ma	No clear effect in site vicinity
	ORDOVICIAN	LATE		
	ORDOVICIAN	MIDDLE	<i>Taconic Orogenesis</i> : Collision and formation of Appalachian basin	No clear effect in site vicinity
	ORDOVICIAN	EARLY		
	CAMBRIAN	LATE		
	CAMBRIAN	MIDDLE	<i>Penobscottian Orogenesis</i> : Collision of Carolina with North America, deformation and metamorphism in Appalachians	No clear effect in site vicinity
NEOPROTEROZOIC		550	<i>Virgilian and Avalonian Orogenesis</i> with fabric development and metamorphism to upper greenschist to amphibolite facies; followed by mafic intrusions?	Development of upper greenschist to amphibolite facies assemblages
		600	Gondwana Island Arc Accumulation of volcanic pile with intrusion of granodiorite-tonalite followed by clastic and carbonate sedimentation	Formation of Carolina Zone and Raleigh Slate Belt stratigraphy. Formation of Carolina, Raleigh, and Spring Hope terranes

Progress Energy Carolinas

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## Geologic History of the Site Vicinity

FIGURE 2.5.1-260

Rev. 1