

# When the Navajo Generating Station Closes, Where Does the Water Go?

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## INTRODUCTION

In December 2019, the Navajo Generating Station (“NGS”) outside of Page, Arizona closed after nearly fifty years of operation. Commentary has focused on whether a new utility interest, or the Navajo Tribe itself, would take over operation of the plant. This Article, however, will examine what will happen to the 34,100 acre-feet of water used by the plant once the steam turbines stop spinning. The complex history of the generating station, the law of the Colorado River concerning its water use, and the stressed drought conditions of the entire Colorado River Basin will create a contentious environment for reallocating the water. However, each of these factors indicate that the Navajo Nation has the superior claim to new uses of this water. Allowing the Navajo to use the NGS’s allocation of water will permit the Nation to develop alternative industries to replace the jobs and revenues lost after the NGS shuttered, and more importantly, increase domestic water service to the forty percent of households on the reservation which lack running water.

To support the Navajo Nation’s claim to the NGS water, this Article will first examine the historical setting of the current conflict. The history of European and American expansion into the Southwest explains how the Navajo came to stand in the middle of major conflicts over water resources and industrial expansion of the surrounding region. Second, an examination of water law in the West, concerning Indian Reservations, and the particularly complex administration of the Colorado River will be necessary to understand why resolution of Indian water claims are so difficult to resolve. Third, this Article will argue that a settlement agreement between the Navajo, federal, and Arizona state governments will be beneficial for each party. The Navajo will need to seek funding to put a right to the water to use as part of a settlement agreement while the federal and state governments will each be interested in maintaining the status quo on the Colorado River. Finally, this Article will suggest that a water settlement could lead to the redevelopment of the NGS site for solar power production and to increase domestic water services on the Navajo Nation reservation. Though the circumstances are complex, both the law and equity suggest the simple solution of allocating all or a portion of NGS’s 34,100 acre-feet for Navajo use.

## I. HISTORICAL SETTING OF THE CURRENT CONFLICT

### A. “Discovery” of the Colorado River; Spanish Colonization Sets the Stage for European Expansion into the Southwest

Nearly one hundred years before the English established the Jamestown Colony, Don Francisco de Coronado mounted his horse and led the first European expedition into the American Southwest.<sup>1</sup> Departing Mexico in 1539, his expedition was seeking Cibola, the seven fabled cities of gold north of Spain’s holdings in the New World. Coronado failed to secure the illusory treasure, but made contact with various Hohokam-descended people, including the Hopi, and traveled the landscapes from present-day Arizona to Texas before returning south.<sup>2</sup> While with the Hopi, Coronado dispatched Lopez de Cardenas to inspect a large canyon and river to the north.<sup>3</sup> Led to the precipice by Hopi guides, Cardenas and his men camped on the south rim of the Grand Canyon for several days, attempting to find a route to the water below. The lightest and most agile men of Cardenas’s group failed to descend more than a third of the depth of the canyon.<sup>4</sup> The scouting party returned to the expedition as the first Europeans to discover the Colorado River in 1540.<sup>5</sup> Hundreds of years passed before European-American settlers were able to influence the river far below, but the effects of European contact with Native Americans were almost immediate.

Horses from Coronado’s expedition escaped and were captured by the Plains tribes. The Apache, Comanche, and others began to develop extensive horse-warrior cultures as their ranges increased with the new form of locomotion.<sup>6</sup> Spaniards continued to launch exploratory and settlement expeditions from Mexico, seeking to “civilize” the Indians they encountered through Catholic indoctrination and European agricultural practices.<sup>7</sup> Trade between the Pueblo Tribes of present-day New Mexico

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<sup>1</sup> MARC REISNER, *CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER* 15 (Pimlico 2001).

<sup>2</sup> *Id.* at 16.

<sup>3</sup> CHARLES WILKINSON, *FIRE ON THE PLATEAU* 98 (2nd ed. 2004) [hereinafter *FIRE ON THE PLATEAU*].

<sup>4</sup> *Id.* at 99.

<sup>5</sup> *Id.*

<sup>6</sup> REISNER, *supra* note 1, at 17.

<sup>7</sup> Harold Carey Jr., *The Spanish and the Navajo*, *NAVAJO PEOPLE CULTURE & HISTORY* (Apr. 15, 2014), <http://navajopeople.org/blog/the-spanish-and-the-navajo/>; for an excellent fictional treatment of this process and period see WILLA CATHER, *DEATH COMES FOR THE ARCHBISHOP* (1927).

and the Spanish spread European stock and goods across the region. By 1598 the Navajo in their Four Corners home had obtained sheep, cattle, and horses from the Pueblo peoples of present-day New Mexico.<sup>8</sup> Peace and conflict alternated as tribes cycled through periods of expulsion, trade, and raiding with the Spanish and Mexican settlers of the region.<sup>9</sup> Unlike other tribes whose historic homelands were closer to seats of power in Mexico, the Navajo remained free from European political and religious control until the Treaty of Guadalupe Hidalgo ceded the region to the United States in 1848.<sup>10</sup>

*B. American Indian Law: Sovereignty, Trust Responsibility, and Treaty Interpretation*

Nearly two thousand miles away from the conflict and colonization of New Mexico, the fledgling United States was developing its own relationship with tribes on the eastern coast of the continent. By the time the United States gained authority over the Southwest in 1848, the federal government had developed a comprehensive legal framework for war, land transfer, and reservation establishment with Native Americans. Through the early 1830s, the United States recognized Native Americans as sovereign nations which could sign treaties with the government.<sup>11</sup> These treaties defined the geographic, military, and trade boundaries between the states and tribes to the exclusion of other colonial powers. Though the government signed treaties with tribes, Americans also believed that they were endowed with the “rights of the conqueror,” permitting aggressive acts against “inferior” indigenous people.<sup>12</sup> These rights established superior claims of title to the lands wrested from the Native Americans.<sup>13</sup> Competing interpretations of legal doctrine on the national level, as well as disputes over the role of federal and state governments in Native American affairs, led to the first of three foundational Indian law decisions in 1823: *Johnson v. M’Intosh*.<sup>14</sup>

Under *Johnson*, native tribes could retain land for their use, but the Court recognized that the United States, as the successor of interest to Great Britain, would have “absolute ultimate title . . . which title the

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<sup>8</sup> Carey Jr., *supra* note 7.

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

<sup>11</sup> Monte Mills, *Why Indian Country? An Introduction to the Indian Law Landscape*, ROCKY MOUNTAIN MIN. L. FOUND., Sept. 2017, at 1–4.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> *Johnson v. M’Intosh*, 21 U.S. 543 (1823); Mills, *supra* note 11, at 1–6.

discoverers possessed the exclusive right of acquiring.”<sup>15</sup> In 1831 and 1832, the Supreme Court addressed the state of Georgia’s attempt to eliminate the Cherokee Nation’s political boundaries in *Cherokee Nation v. Georgia*.<sup>16</sup> Chief Justice Marshall decided the Supreme Court could exercise original jurisdiction because the controversy centered around treaties between the Cherokee Nation and the United States, which had placed the Tribe under the protection of the federal government.<sup>17</sup> Rather than a full sovereign, the treaties had made the Tribe a “domestic, dependent nation . . . in a state of pupilage,” a description that still guides the trust responsibilities of the federal government today.<sup>18</sup>

After *Cherokee Nation*, the state of Georgia attempted to impose its laws within the boundaries of the reservation, a decision which spurred the case *Worcester v. Georgia*.<sup>19</sup> The Court’s analysis again focused on the provisions of the treaties between the United States and the Cherokee Nation. The treaties, as supreme law under the United States constitution, could not be interfered with by the states.<sup>20</sup> Together *Johnson, Cherokee Nation*, and *Worcester* established the fundamentals of Indian law: tribal sovereignty, the federal trust responsibility, and the centrality of treaties to resolving controversies arising from Indian affairs.<sup>21</sup>

Rather than settling the Indian question, these cases did not prevent the federal government from pursuing a policy of removal. Tribes were relocated from their homelands to successive reservations west of continuous American settlement.<sup>22</sup> These relocations were often accompanied by renegotiation with tribes, or factions within tribes, to open their lands to settlement and to move tribal members to less-valuable lands. The cycle continued through the mid-nineteenth century as the government attempted to limit conflict between tribes and settlers looking to exploit native lands.<sup>23</sup> When treaties and promises were ineffective, the military was deployed to forcibly remove Native Americans. In 1871, Congress purported to end the practice of making treaties with tribes.<sup>24</sup> However, legislation and executive orders continued to be used for

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<sup>15</sup> *Johnson*, 21 U.S. at 592.

<sup>16</sup> *Cherokee Nation v. Georgia*, 30 U.S. 1 (1831).

<sup>17</sup> Mills, *supra* note 11, at 1–6.

<sup>18</sup> *Cherokee Nation*, 30 U.S. at 13.

<sup>19</sup> *Worcester v. Georgia*, 31 U.S. 515 (1832).

<sup>20</sup> *Id.* at 559–60.

<sup>21</sup> Mills, *supra* note 11, at 1–7.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> *Id.* at 1–8.

military reasons, to settle tribes, and to modify reservations and reservation rights.

### *C. Navajo Conflict and Resettlement on their Historic Homelands*

The Republic of Mexico ceded its territory in the Southwest to the United States via the Treaty of Guadalupe Hidalgo of 1848 at the conclusion of the Mexican-American War.<sup>25</sup> Mexican settlers on the ceded lands had the option of either returning to Mexico within the year, or becoming American citizens with a guarantee that their property rights and existing land grants would be honored.<sup>26</sup> The United States also inherited a number of conflicts in the Southwest which would continue through the late nineteenth century.<sup>27</sup> Puebloan and formerly Mexican residents of the new American territory quickly requested that the United States stop the Navajo from raiding their settlements, precipitating the Navajo Wars. After years of fighting, Colonel Kit Carson brought these wars to a close in 1863 through a combined campaign against the Navajo and Mescalero Apache.<sup>28</sup> Continuous war, the disruption of agriculture, and the onset of winter forced many Navajo to surrender to the American forces at the Canyon de Chelly in northeastern Arizona.<sup>29</sup> Having capitulated in their historic homelands, they were forced to march several hundred miles to their imprisonment at the Basque Redondo in New Mexico. The march was difficult, and conditions were exacerbated by the conduct of the soldiers escorting the Navajo to their new prison. Those Navajo who resisted were physically abused or shot, women who gave birth on the trail were given no time to rest, and the young and old were hard-pressed to keep pace.<sup>30</sup>

Four years after the Navajo were relocated to Basque Redondo, President Johnson approved an act to establish peace with all hostile Native Americans of the Great Plains to clear the way for American expansion and settlement across the West.<sup>31</sup> The Commission of Indian

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<sup>25</sup> Will Davidson & Julia Guarino, *The Hallett Decrees and Acequia Water Rights Administration on Rio Culebra in Colorado*, 26 COLO. NAT. RESOURCES ENERGY & ENVTL. L. REV. 219, 226 (2015).

<sup>26</sup> *Id.*

<sup>27</sup> Mathew J. Krogman, *Navajo Wars*, in THE ENCYCLOPEDIA OF NORTH AMERICAN INDIAN WARS, 1607-1890: A POLITICAL, SOCIAL, AND MILITARY HISTORY, 555-56 (Spencer Tucker et. al. eds., Vol. I, 2011).

<sup>28</sup> *Id.*

<sup>29</sup> PETER IVERSON, THE NAVAJO 35 (2009).

<sup>30</sup> *Id.*

<sup>31</sup> WILLIAM TECUMSEH SHERMAN, MEMOIRS OF GENERAL W.T. SHERMAN 781-83 (Michael Fellman ed., Penguin Books 2000).

Affairs was joined by military officers appointed by the president to negotiate peace treaties with tribes then at war with the United States.<sup>32</sup> Lieutenant General Sherman was dispatched to Fort Sumner as part of this general peace process to negotiate with the Navajo. On May 28, 1868, Chief Barbancito delivered an impassioned speech to General Sherman, asking that the Navajo be allowed to return to their homeland.<sup>33</sup> Canyon de Chelly was beautiful and made for the Navajo people, he argued, while the lands of the Basque Redondo recoiled from the people, providing no medicine, forage for animals, fuel for fire, or crops to sustain the people.<sup>34</sup> “Before I am sick or older, I want to go see the place I was born . . . I am speaking to you General Sherman, as if you were a holy spirit. I wish you would tell me when you are going to take us to our own country. We do not want to go right or left, but straight back to our own land.”<sup>35</sup> Recognizing that the Navajo would not accept being sent east to the Indian Territory in present-day Oklahoma, the commissioners resolved to return the Navajo their homelands.<sup>36</sup> On June 1, 1868, Barboncito and the other Headmen of the Navajo Tribe concluded a treaty with Lieutenant General Sherman and Commissioner Samul Tappan.<sup>37</sup>

Article I of the treaty stated that war between the Navajo Nation and the United States would cease and provided for the punishment of white and non-white criminals on tribal lands. Article II set aside the initial reservation for the Navajo, encompassing the site of old Fort Defiance and the entirety of the Canyon de Chelly, for the “use and occupation of the Navajo Tribe of Indians, and for such other friendly tribes or individual Indians as from time to time they may be willing, with the consent of the United States to admit among them.”<sup>38</sup> Articles III through VIII established the Navajo agency, provided for the distribution of lands for agricultural use on the new reservation, provision of agricultural implements, establishment of schools, and ten years of annuity in goods.<sup>39</sup> The lengthy treatment of agricultural concerns in the treaty is important when considering what water rights the Tribe should ultimately hold in conjunction with their land holdings. Article IX required the Navajo to relinquish title to all lands outside of the reservation but allowed them to

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<sup>32</sup> *Id.*

<sup>33</sup> IVERSON, *supra* note 29, at 38; LAWRENCE D. SUNDBERG, *DINETAH: AN EARLY HISTORY OF THE NAVAJO PEOPLE* 86–87 (1995).

<sup>34</sup> *Id.*

<sup>35</sup> *Id.*

<sup>36</sup> SHERMAN, *supra* note 31, at 783.

<sup>37</sup> Treaty Between the United States of America and the Navajo Tribe of Indians, Navajo-US, Jun. 1, 1868, 15 Stat. 667.

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*



retain hunting rights to those grounds. Articles X through XIII provided that the Tribe could not cede any part of the new reservation without a three-quarter vote and set out the terms for the transportation of the Tribe to the newly formed reservation.<sup>40</sup>

Having been reestablished on a portion of their historic homeland, the Navajo were able to persuade the government to make additional grants of land to the Tribe by executive order over the next sixty years.<sup>41</sup> This was possible because the arid region had been largely neglected by American settlers. By the end of the 1800s, the Navajo Nation largely included the Upper Basin portion of Arizona after three executive orders added over 3 million acres to their original reservation.<sup>42</sup> These grants set the stage for the Navajo Nation's involvement in the region's burgeoning growth, which was fueled by coal deposits on and water resources flowing through the reservation's boundaries.

*D. Navajo Generating Station in the Context of the American Southwest's "Big Buildup"*

Federal Indian policy shifted away from removal to one of allotment and assimilation in the late nineteenth and early twentieth centuries. By the 1920s the federal government began encouraging the reestablishment of tribal governments, but at the expense of true self-determination and control of tribal resources.<sup>43</sup> Mineral development on tribal lands was exemplary of this lack of control. The federal government opened tribal lands to mineral exploration and development, but negotiated terms for these developments poorly, resulting in the loss of hundreds of millions of dollars in royalty payments.<sup>44</sup> Most of the resulting contracts and leases were very disadvantageous to the tribes, with some examples of blatant unethical conduct. The attorney John Boyden's actions are some of the most notorious. Boyden ostensibly represented the Hopi Tribe while negotiating coal leases but was also secretly employed by Peabody Coal. He ultimately cut a lease and purchase agreement that was highly disadvantageous to the Tribe.<sup>45</sup>

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<sup>40</sup> *Id.*

<sup>41</sup> IVERSON, *supra* note 29, at 45.

<sup>42</sup> *Id.*

<sup>43</sup> See COHEN'S HANDBOOK OF FEDERAL INDIAN LAW §§ 1.04, 1.05 (Nell Newton et al. eds., 2012 ed., 2012).

<sup>44</sup> Emily Guerin, *Betting on Coal*, HIGH COUNTRY NEWS (Mar. 17, 2014), <https://www.hcn.org/issues/46.5/navajo-nation-bets-on-coal>.

<sup>45</sup> FIRE ON THE PLATEAU, *supra* note 3, at 169–71.

Despite not being priced at fair market value, the mines did provide steady payments and jobs to the tribes. Over time, tribes were able to negotiate better terms for leasing their land and resources as their governments and representatives increased in legal sophistication.<sup>46</sup> Between 1963 and 1974, energy development on the Colorado Plateau proceeded at a frenzied pace in a period Professor Charles Wilkinson termed the “Big Buildup.”<sup>47</sup> This buildup was the result of increasing demand for electric power in the Southwest, and synergy between federal and tribal policy in the 1950s. In the post-war period, metropolitan preferences in federal policy led to a burgeoning of the cities of the Southwest, like Phoenix, invited by savvy boosterism and local attempts to capture industry.<sup>48</sup> By the end of the 1940s the Bureau of Reclamation, placed in charge of electricity transmission across the region, forecasted electricity shortages even with planned additional hydroelectric dams across the West. Natural gas prices at the time were quite high, leaving the region’s three trillion-ton coal reserve as the obvious fuel for this new growth.<sup>49</sup> By the 1950s, influential Arizona Senator Barry Goldwater envisioned tribal energy development as an answer to problems on the reservations; tribal leaders envisioned a modern way of living that included industrial jobs, a strong and solvent tribal government, and “two lights in every Hogan.”<sup>50</sup> Navajo Nation Tribal Chairman Paul Jones, at the dedication of the Four Corners Generating Station, explained his vision of new power plants electrifying the Navajo Nation while attracting industries and jobs to the reservation.<sup>51</sup>

NGS—completed a decade after the completion of the Four Corners Generating Station—was the result of California and Arizona’s wrangling over the water of the Colorado River and a political compromise between the burgeoning environmental movement and the Bureau of Reclamation. At the tail end of the Bureau’s dam-building era, a period stretching from the 1930s to the 1960s, the Western states were in a fight over water and power-development projects. Of those, the Central Arizona Project (“CAP”) was one of the largest.<sup>52</sup> CAP was an extremely ambitious proposal—and remains a marvel of engineering—pumping Arizona’s allotment of Colorado River water uphill from Lake Havasu to serve the

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<sup>46</sup> *Id.*

<sup>47</sup> *Id.*

<sup>48</sup> ANDREW NEEDHAM, POWER LINES: PHOENIX AND THE MAKING OF THE MODERN SOUTHWEST 7, 10 (2014).

<sup>49</sup> *Id.* at 126–27.

<sup>50</sup> *Id.* at 153.

<sup>51</sup> *Id.*

<sup>52</sup> REISNER, *supra* note 1, at 285–91.

needs of Phoenix, Tucson, Indian communities, and agricultural interests.<sup>53</sup> CAP required a massive amount of energy to operate and a significant source of revenue to finance the cost of infrastructure. The Bureau of Reclamation proposed to provide the power and revenue by building two new dams inside of the Grand Canyon, one at Marble Gorge and one at Bridge Canyon.<sup>54</sup> The locations of these dams in the Grand Canyon precipitated a concerted effort by famed conservationist David Brower, the Sierra Club, and other environmentalists to rally public opinion against the projects, forcing the Bureau to table the dams. NGS was the solution which kept dams out of the Grand Canyon, provided additional power to bankroll the CAP infrastructure, and allowed water to flow uphill to Arizona.<sup>55</sup> It also provided the Navajo and Hopi with another set of leases and purchase agreements for land and minerals.

The compromise to build NGS enabled passage of the Colorado River Basin Project Act in 1968, in which Congress authorized the construction of Glen Canyon Dam, CAP, and NGS.<sup>56</sup> Constructed just northeast of Page, Arizona, NGS received its water from pumps in Lake Powell for electricity generation and cooling. The station was connected to the Kayenta Mine on Black Mesa to the east by a dedicated electric railway for fuel.<sup>57</sup> Large municipal power providers in Arizona and California, the federal government, and CAP itself operated the station for nearly fifty years.

Since the NGS began producing power in 1973, major shifts in energy economics and increased environmental scrutiny have fundamentally changed the economics of power generation. Increasingly strict emissions requirements under the Clean Air Act of 1970 and decreasing prices of natural gas-generated electricity on the spot market have pressured the coal power sector. In 2006, Mohave Generating Station in Laughlin, Nevada closed, as did the Black Mesa Mine which provided its fuel.<sup>58</sup> The plant's unique coal slurry supply of fuel, a mixture of pulverized coal and non-renewable groundwater, was transported over 300 miles to the plant where it was dried and fired for generation.<sup>59</sup> In the 1990s, Hopi and Navajo environmental groups challenged the mines' effect of pumping on their aquifer while the Grand Canyon Trust and other

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<sup>53</sup> *See id.*

<sup>54</sup> *Id.* at 285.

<sup>55</sup> *Id.* at 290.

<sup>56</sup> *Id.*

<sup>57</sup> *See id.*

<sup>58</sup> Daniel Kraker, *The End of an Era on the Colorado Plateau*, HIGH COUNTRY NEWS (Jan. 23, 2006), <http://www.hcn.org/issues/314/16040>.

<sup>59</sup> *Id.*

groups mobilized against the plant for consistently violating air quality standards.<sup>60</sup> Mohave's operator, Southern California Edison, agreed to retrofit the plant with pollution control systems and find another source of water for the slurry line, but shifting market conditions cut these plans short.<sup>61</sup> In a prescient decision, Edison forecast that natural gas electricity would make the coal station uneconomic to maintain and shuttered the plant rather than pay for the planned retrofit.<sup>62</sup> Ten years later, these very market conditions sparked the beginning of the end for NGS.

In 2015, the four utilities<sup>63</sup> with an ownership stake in NGS voted to cease operations at the end of 2019.<sup>64</sup> The cost of retrofitting the plant with new pollution controls, and the lower price of electricity on the spot-market driven by natural gas production, made further operation uncompetitive for the owners.<sup>65</sup> Both the Bureau of Reclamation and Peabody Coal, the Kayenta Mine operator which provides fuel to the plant, were unsuccessful in finding new operating partners to replace the utilities in order to extend the life of the plant.<sup>66</sup> CAP alone stood to save \$38.5 million dollars by purchasing power on the open market rather than operating the NGS, demonstrating the significant shift in the economics of power production.<sup>67</sup>

Private firms have expressed an interest in purchasing the NGS only to demur after failing to secure power purchase agreements.<sup>68</sup> A final effort to acquire the plant and mine by the Navajo Transitional Energy

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<sup>60</sup> *Id.*

<sup>61</sup> *Id.*

<sup>62</sup> *Id.*

<sup>63</sup> *NGS Owners Move Forward with Decommissioning*, SRP (Feb. 28, 2019), <https://media.srpnet.com/ngs-owners-move-forward-with-decommissioning/> (the four utilities are the Salt River Project, Arizona Public Service Co., Tucson Electric Power, and NV Energy).

<sup>64</sup> Jonathan Thompson, *What the Navajo Generating Station will Leave Behind*, HIGH COUNTRY NEWS (Mar. 20, 2017), <http://www.hcn.org/issues/49.5/what-the-navajo-generating-station-will-leave-behind>.

<sup>65</sup> *Id.*

<sup>66</sup> See Ryan Randazzo, *Peabody Seeking Buyer for Troubled Coal Plant*, AZ CENTRAL (Apr. 10, 2017), <https://www.azcentral.com/story/money/business/energy/2017/04/10/peabody-energy-hopes-land-buyer-troubled-navajo-generating-station/100303150/>.

<sup>67</sup> Ryan Randazzo, *Water Users Better Off Without Navajo Plant*, AZ CENTRAL (Feb. 16, 2017), <https://www.azcentral.com/story/money/business/energy/2017/02/16/officials-arizona-water-users-better-off-without-navajo-generating-station-coal-plant/98005410/>.

<sup>68</sup> Ryan Randazzo, *Two Buyers are Considering Purchase of Navajo Plant, but Time is Running Out*, AZ CENTRAL (Apr. 29, 2018), <https://www.azcentral.com/story/money/business/energy/2018/04/29/two-buyers-considering-purchase-navajo-coal-plant-but-time-running-out/556180002/>; Felicia Fonseca, *Navajo Nation Company Ends Bid to Buy Power Plant, Mine*, THE DENVER POST (Mar. 24, 2019).

Company fell apart in March of 2019. The current owners required the Tribe to accept all known and unknown liabilities at the production site in order to purchase the plant, which the Navajo were not prepared to do.<sup>69</sup> Nicole Horseherder, a Navajo activist, summed up the efforts to save the NGS at a hearing in Washington D.C.; “Burning coal is uneconomic and can no longer compete against cleaner, cheaper and far more culturally appropriate sources of power, such as the solar and wind resources that are plentiful on the Navajo Nation.”<sup>70</sup>

The closure will have an undisputed negative economic impact on the communities that rely on the NGS and Kayenta Mine for jobs. The Navajo and Hopi tribal budgets will also suffer, as NGS lease payments and coal royalties contributed roughly one-fifth of the Navajo budget, and nearly eighty-seven percent of the Hopi’s general budget is generated by coal-related royalties and fees.<sup>71</sup> Despite these hardships, the transmission capacity and water previously used by the NGS present opportunities for development which can benefit the tribes without the negative environmental consequences of coal-fired power production.<sup>72</sup>

## II. OF MILLET AND MINERS: WATER LAW IN THE WEST, ON THE RESERVATIONS, AND ON THE COLORADO

In order to determine where the water of the NGS should—or even can—be allocated, we must first examine the principles of prior appropriation which control water distribution in the West. These rules differ from the more widely known rule of riparianism which applies in the eastern United States. Second, we need to understand how water rights owned by tribes like the Navajo, federal reserved rights, fit into the largely state-by-state scheme of water allocation. This will entail an examination of the (in)famous *Winters* case that established these rights, as well as the McCarran Amendment, which permits these rights to be adjudicated in

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<sup>69</sup> Fonseca, *supra* note 68.

<sup>70</sup> Ariana Bustos Cronkite, *Lawmakers, Witnesses Grapple with how to Save Navajo Generating Station*, ARIZONA CAPITOL TIMES (Apr. 13, 2018), <https://azcapitoltimes.com/news/2018/04/13/lawmakers-witnesses-grapple-with-how-to-save-navajo-generating-station/>.

<sup>71</sup> James Rainey, *Lighting the West, Dividing a Tribe*, NBC NEWS (Dec. 18, 2017), <https://www.nbcnews.com/specials/navajo-coal>.

<sup>72</sup> For a discussion of the opportunity to develop renewable energy projects in the wake of the NGS closure see Gregor MacGregor, *Navajo Generating Station: An Opportunity for Renewable Energy Project Finance* (Apr. 18, 2018) (unpublished paper) (on file with the author).

state court. Third, we will look at the “Law of the River,”—which governs the main-stem Colorado and its tributaries—and examine how it will dominate any potential outcome for the Navajo. This body of law, a motley collection of interstate compacts, judicial decisions, and operating guidelines, creates uncertainty both by its express terms and its silences. Fourth, we will examine the story of how NGS secured its water source in relation to the Navajo Tribe and the tribe’s outstanding water claims as they historically frame the resolution of the NGS water. Finally—because of the McCarran Amendment and facets of the Law of the River—we will look at the ultimate allocation of NGS water that must be resolved under Arizona state law. The power of the state to issue a permit for future uses, and Arizona’s own state-level interest in the NGS water, will dictate the form of future permitting, litigation, or settlement.

#### *A. Prior Appropriation: First in Time, First in Right*

The allocation of water is largely a matter of state law, and two regimes split East from West across the 100<sup>th</sup> Meridian. This longitudinal demarcation was first identified by John Wesley Powell as the dividing line between the wetter East, where twenty or more inches of rainfall occur, and the more arid West, where irrigation is required to raise crops.<sup>73</sup> That scarcity, and the infrastructure required to mine and farm the land, drove a legal evolution from the imported riparian law of England to one of prior appropriation.<sup>74</sup>

In the arid West, even the largest rivers could be ephemeral in nature. Water law evolved symbiotically with the hard rock mining it supported on scarcely inhabited federal lands.<sup>75</sup> Miners needed water to operate sluices, large open flumes, which separated gravel and sand from precious metals. Once a miner invested the capital and labor to build water conveyances from the nearest stream to their mining claim, they needed an assurance that their water would be protected from junior miners who

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<sup>73</sup> For a discussion of climate change’s eastward effect on this notable demarcation, see Press Release, Kevin Krajick, the 100<sup>th</sup> Meridian, Where the Great Plains Begin, May be Shifting, for the State of the Planet (Apr. 11, 2018), <https://blogs.ei.columbia.edu/2018/04/11/the-100th-meridian-where-the-great-plains-used-to-begin-now-moving-east/>.

<sup>74</sup> It should also be noted that Civil Law from the continent had a great deal to do with shaping the water law and title regimes of Florida and most of the western United States prior to those areas’ acquisition by the United States. Civil Law still has some bearing in Louisiana as well. For a discussion on these effects and the roots of Civil Law, see EUGENE F. WARE, ROMAN WATER LAW (1905).

<sup>75</sup> CHARLES WILKINSON, CROSSING THE NEXT MERIDIAN 231 (1992) [hereinafter “CTNM”].

might deplete the water from upstream.<sup>76</sup> The system they fashioned for the water was just like the one governing claims to minerals, a simple rule of capture: first in time, first in right.<sup>77</sup> It was a system “reinforced, no doubt, by the equity and inevitability in the cold-eyed glare of a bearded, pistoled miner already hard at work.”<sup>78</sup> So long as a miner was actively operating a claim and its water with due diligence, others could not interfere with his right to take the water.<sup>79</sup>

The law of the mining camp soon became the law of California in a case called *Irwin v. Phillips*<sup>80</sup> in 1855. The case arose from a dispute on the South Fork of Poor Man’s Creek, where junior miners had diverted already claimed water.<sup>81</sup> Turning away from the riparian law of England, the court recognized the law of priority which had developed in the mining camps. In affirming the senior injured miner’s right to take the water, the court properly solemnized the proceedings by translating the miner’s edict into Latin, *qui prior est in tempore potior est in jure*: first in time, first in right.<sup>82</sup> This case settled the matter of prior appropriation on federal lands. In 1880, the Supreme Court of Colorado affirmed the principle of prior appropriation between irrigators on private lands, and the system spread to the remainder of the West.<sup>83</sup>

Like its western neighbors, Arizona governs under the principle of prior appropriation by operating a permit system to administer water use. For the Navajo to claim a right to the water currently being used by the NGS, their claim must fit within the system of prior appropriation: first in time, first in right. Because there was no tribal headgate at Glen Canyon in 1968, the Navajo Nation must rely on its federal reserved rights to establish a claim to the water used by the NGS. This must be done under the *Winters* doctrine.

### *B. The Winters Doctrine and the McCarran Amendment*

During the United States’ westward expansion in the nineteenth century, the federal government reserved roughly forty-seven percent of all Western lands for military installations, Indian reservations, national

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<sup>76</sup> *Id.* at 232.

<sup>77</sup> *Id.*

<sup>78</sup> *Id.*

<sup>79</sup> *Id.*

<sup>80</sup> *Irwin v. Phillips*, 5 Cal. 140 (1855).

<sup>81</sup> CTNM, *supra* note 75, at 233.

<sup>82</sup> *Id.*

<sup>83</sup> *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443, 447 (1882).

forests, national parks, and other public purposes.<sup>84</sup> Most of these reservations were made many years before state governments formed from the territories and began to administer water under the prior appropriation doctrine. The question of how these lands should be supplied with an adequate supply of water would not arise until population growth driven demand began to outstrip water supplies. Conflict between Indian reservations and state-sanctioned water users was resolved by the Supreme Court in *Winters v. United States*<sup>85</sup> in 1908.

The case arose from a dispute on the Milk River in northern Montana between homesteaders who had begun appropriating water in the early 1890s, and the Fort Belknap Tribe, which began irrigating in 1898.<sup>86</sup> The growing season of 1905 was a dry one, and there was insufficient water for both the homesteaders and the Tribe, so a United States Attorney sued the upstream appropriators in federal court to have their headgate closed in order to allow the Tribe to use the water.<sup>87</sup> Winter and the other homesteaders had appropriated the water prior to the Tribe, so under Montana's law of prior appropriation they had the better right to the water.<sup>88</sup> However, the Supreme Court reasoned that all tribes had been sovereign and enjoyed real property rights in their original territories before entering any treaties with the United States.<sup>89</sup> At the time a treaty limited the Tribe to a reservation, they reserved their property rights. The Supreme Court announced that the tribes held these reserved water rights and that those rights dated to the establishment of their reservation.<sup>90</sup>

How to retroactively fit these reserved federal water rights into state prior appropriation systems represented a procedural hurdle to tribes seeking to adjudicate their water rights. In 1953 Congress passed the McCarran Amendment,<sup>91</sup> which operates as a waiver of federal sovereign immunity and allows state courts to adjudicate and administer federal water rights in state court. While this has opened the door procedurally for establishing federal reserved water rights in prior appropriation systems, several issues remained. First, many federal reserved water rights are among the most senior, threatening to upset users who may lose water as

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<sup>84</sup> Quoc Trung Bui & Margot Sanger-Katz, *Why the Government Owns So Much Land in the West*, N.Y. TIMES (Jan. 5, 2016), <https://www.nytimes.com/2016/01/06/upshot/why-the-government-owns-so-much-land-in-the-west.html>.

<sup>85</sup> *Winters v. U.S.*, 207 U.S. 564 (1908).

<sup>86</sup> CTNM, *supra* note 75, at 267.

<sup>87</sup> *Id.*

<sup>88</sup> *Id.* The S on his name was added erroneously during court proceedings. *Id.*

<sup>89</sup> *Id.*

<sup>90</sup> *Id.* at 267–68.

<sup>91</sup> 43 U.S.C. § 666 (2018).



a result of their incorporation. This effect becomes more disruptive the longer appropriators rely on the status quo of priorities. Second, determining the amount of water and for what beneficial uses these federal reserved rights should be accorded presents a considerable challenge. The treaties and acts which established the reservations often make no mention of water resources, so courts must settle on the proper formula for how much water a particular reservation requires. These issues would not be resolved by the Supreme Court until fifty-five years after *Winters* and ten years after the McCarran Amendment in *California v. Arizona*<sup>92</sup> as part of the ongoing evolution of the Law of the River.

#### *D. River, the Law of*

##### *1. Introduction*

The Law of the River is as far-reaching and complex as the systems of dams, reservoirs, aqueducts, and transmission lines which make modern life across the West possible. It is composed, primarily, of two interstate compacts, an international treaty, four Acts of Congress, a major interstate lawsuit, and myriad operating guidelines. Its shadow reaches across almost every water question in the region and will bear directly on the question of where the NGS's water is allocated.

The Law of the River is so complex, in part, because of the river's overarching regional importance. The Colorado River supplies thirty-five to 40 million Americans across the West with water, stretching from the river's headwaters in Colorado and Wyoming to the Gulf of California. The river and its tributaries drain 242,000 square miles in the United States and 2,000 square miles in Mexico.<sup>93</sup> Fifty years before the "Big Buildup" on the Colorado Plateau and the post-war boom of cities across the West, the states that rely on the river recognized a need to govern its allocation between them. By the time the states sat down at the negotiating table in 1922, they had grossly overestimated the flow of the river at 17 million acre-feet per year on average, if not more, based on a limited number of measuring devices and a data set which included the wettest period in the region in 500 years.<sup>94</sup> This amounts to a meager one-twenty-sixth of the Mississippi River's annual flow, a fact which highlights not only the aridity of the region, but the Colorado River's importance within it.

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<sup>92</sup> *Arizona v. California*, 373 U.S. 546, 600-01 (1963).

<sup>93</sup> Jason Anthony Robison, *The Colorado River Revisited* 88 U. COLO. L. REV. 475, 478 (2017); Charles J. Meyers, *The Colorado River*, 19 STAN. L. REV. 1, 1 (1966).

<sup>94</sup> JOHN FLECK, *WATER IS FOR FIGHTING OVER: AND OTHER MYTHS ABOUT WATER IN THE WEST* 16-17 (2016).

## 2. *The Colorado River Compact*

In 1922 the seven states of the Colorado River basin were brought together by vastly differing concerns. The Lower Basin states of California, Arizona, and Nevada were interested in projects which would calm the river's violent flooding in its lower reaches while regulating its flow and providing storage for irrigation.<sup>95</sup> The scope of such a massive undertaking would, the Lower Basin states believed, require the assent of the Upper Basin states' congressional delegations.<sup>96</sup> The Upper Basin states of Colorado, Wyoming, New Mexico, and Utah were concerned that the rapid development in the Lower Basin and a newly constructed dam would give the Lower Basin a legally enforceable right to the lion's share of the Colorado River and stifle their future growth.<sup>97</sup> The fear of prior appropriation being applied between, and not just within, states was borne out when the Supreme Court announced that the principle would be a governing rule in litigation between prior appropriation states.<sup>98</sup> The stage had been set for an agreement between the seven states.

Compact commissioners from each state and Secretary of Commerce Herbert Hoover met in Bishop's Lodge, outside of Santa Fe, New Mexico, in 1922 to come to an agreement over the apportionment of the Colorado River.<sup>99</sup> The agreement they reached, the Colorado River Compact, did not apportion water between the individual states, but instead established a legal relationship between the Upper Basin states and those of the Lower Basin.<sup>100</sup> The basic terms of the Compact apportion 7.5 million acre-feet to the Upper Basin and 7.5 million acre-feet to the Lower Basin, with the possibility of an additional million acre-feet for the Lower Basin, with Lee Ferry below the present-day Glen Canyon dam as the dividing point.<sup>101</sup> Two major questions arise from the provisions of the Compact that bear on the NGS water allotment.

First, Article VIII declares that present perfected rights are not impaired by the functioning of the Compact. As we will see in the

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<sup>95</sup> Meyers, *supra* note 93, at 11.

<sup>96</sup> *Id.*

<sup>97</sup> *Id.*

<sup>98</sup> *Wyoming v. Colorado*, 259 U.S. 419, 470-71 (1922). This pronouncement would be tempered by later equitable apportionment cases before the Court. *See Nebraska v. Wyoming*, 325 U.S. 589, 617-18 (1945).

<sup>99</sup> Meyers, *supra* note 93, at 11.

<sup>100</sup> *Id.* at 14.

<sup>101</sup> *Id.* at 15-16. Though the Compact uses the terms "Upper Division" and "Lower Division" for the two groups of states, they are almost always referred to as the Upper Basin and Lower Basin states, though part of Arizona technically exists within both the Upper and Lower basins. *See id.*

discussion of *Arizona v. California* and the Boulder Canyon Project Act, reserved tribal water rights are largely outside the purview of the Law of the River. While this may seem to make the question of Navajo water claims simpler, it has immense implications for the functioning of the Colorado River system as a whole. Second, the minutes of the Compact Commission reveal that Secretary Hoover noted that “the Indian question is always prominent in every question of the West... we thought we would settle it while we were at it.”<sup>102</sup> The supposed solution is found in Article VII, which merely states that “Nothing in this compact shall be construed as affecting the obligations of the United States of America to Indian Tribes.”<sup>103</sup> This brief quote and the resultant article are virtually the only record that the Commission discussed Indian water rights. It failed to meaningfully address how these rights would be calculated, or where such water would come from, since the assumed base flow of the river was evenly split between the Upper and Lower Basin states, and any surplus would go towards a future agreement with Mexico.<sup>104</sup> In a persistent theme of the Law of the River until the *Arizona v. California* decision, Indian water rights were only perfunctorily addressed in a meeting of non-Indians to which no tribes had been invited, and at which no tribes were present.<sup>105</sup>

### 3. Conflict in the Lower Basin Clarifies Winters

Each of the state commissioners returned home from Bishop’s Lodge and had the Colorado Compact ratified by their legislatures, except for Arizona. Uncertainty over the allocation of the Lower Basin’s 7.5 million acre-feet was a driving factor; no one in Arizona wanted to cut a deal they would later regret.<sup>106</sup> The 1923 legislature refused to ratify the Compact, believing that the state’s only leverage in further development on the Colorado was to leave the Compact on the table until terms favorable to Arizona could be hammered out.<sup>107</sup> Arizona was concerned that completion of Hoover Dam and the All-American Canal would quickly result in California taking the majority of the Lower Basin allocation, and worked to come to an agreement with California over an allocation between the two states.<sup>108</sup> Neither could agree to a mutually satisfactory number after several years of wrangling. The remainder of Congress

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<sup>102</sup> William Douglas Back & Jeffery S. Taylor, *Navajo Water Rights: Pulling the Plug on the Colorado River*, 20 NAT. RESOURCES J. 71, 76 (1980).

<sup>103</sup> *Id.*

<sup>104</sup> *Id.* at 76 n.26; Meyers, *supra* note 93, at 15.

<sup>105</sup> Back & Taylor, *supra* note 102, at 76.

<sup>106</sup> Meyers, *supra* note 93, at 39.

<sup>107</sup> *Id.* at 38–39.

<sup>108</sup> *Id.* at 39–40.

settled the debate by limiting California to 4.4 million acre-feet per year in the Boulder Canyon Project Act of 1928, which authorized the construction of Hoover Dam.<sup>109</sup>

Arizona's fears were not unfounded. California was growing rapidly, exceeding its 4.4 million acre-feet limit and borrowing from Arizona's share before the Grand Canyon State had put any of its Colorado water to use, an overdraft California wouldn't rectify until the turn of the new millennium.<sup>110</sup> Acrimony in Arizona reached a high point when Governor B.B. Moeur dispatched an expedition by the Arizona National Guard in 1934 to monitor Parker Dam's future build-site. They were to report "on any attempt . . . to place any structure on Arizona soil either within the bed of the [Colorado River] or on the shore."<sup>111</sup> This four-man contingent reported daily on the surveying crews' progress by radio until the Bureau of Reclamation began to lay a trestle bridge across the mouth of the Canyon, with the eastern end anchored on Arizona soil.<sup>112</sup> Rather than ending the political show-of-force, Moeur declared martial law and sent a hundred-man militia to the rim.<sup>113</sup> Arizona had also taken its fight to the Supreme Court, failing to achieve a result in litigation during 1931 and 1934.<sup>114</sup> It wasn't until Major F.I. Pomeroy, commander of the Arizona expedition, had stood sun-beaten and dust covered on the rim for nearly a year that Arizona found its mark in court.<sup>115</sup>

The United States sued Arizona to enjoin the military presence at the construction site, and Arizona countered that the construction of the dam hadn't been authorized by Congress.<sup>116</sup> In a surprise decision, the Court agreed with Arizona and blocked the injunction.<sup>117</sup> In response, California's congressional delegation pushed a bill through specifically authorizing the dam.<sup>118</sup> Seeing no further legal recourse to stop development on the Colorado, Arizona withdrew its troops and sought an

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<sup>109</sup> *Id.* at 39.

<sup>110</sup> REISNER, *supra* note 1, at 257.

<sup>111</sup> *Id.* at 258.

<sup>112</sup> *Id.*

<sup>113</sup> *Id.* at 259.

<sup>114</sup> Meyers, *supra* note 93, at 40; *Arizona v. California*, 283 U.S. 423 (1931); *Arizona v. California*, 292 U.S. 341 (1934).

<sup>115</sup> REISNER, *supra* note 1, at 258–59.

<sup>116</sup> Meyers, *supra* note 93, at 40; *United States v. Arizona*, 295 U.S. 174 (1935).

<sup>117</sup> *United States v. Arizona*, 295 U.S. 174 (1935).

<sup>118</sup> 49 Stat. 1039 (1935).

equitable apportionment at the Supreme Court.<sup>119</sup> The United States refused to be joined in the suit, so the Court dismissed the case.<sup>120</sup>

Having failed on the battlefield and in the courts, Arizona found itself in an increasingly dire situation. The state was wracked by drought at the same time as its population was just beginning to boom as part of the beginning of the Big Buildup.<sup>121</sup> The situation on the Colorado was not much more favorable. In 1944, the United States promised Mexico 1.5 million-acre-feet per year from the river, and California's use of the river climbed steadily towards 5.3 million acre-feet in 1953 when Los Angeles installed a second battery of pumps on the Colorado.<sup>122</sup> In desperation, Arizona signed on to the Colorado River Compact and received a contract from the Bureau of Reclamation for 2.8 million acre-feet, the same amount of water contemplated in the Boulder Canyon Project Act nearly thirty years before.<sup>123</sup> The major questions remaining were legal and economic. First, how would Arizona actually use the water from its contract? The Central Arizona Project was projected to cost one billion dollars, and California's delegation fought its construction tooth and nail in Congress.<sup>124</sup> Second, it was unclear how much of the 2.8 million acre-feet Arizona could legally receive from the Colorado River, and whether that amount would be precluded by California's overdraft by a decision on prior appropriation.<sup>125</sup>

California had defeated bills in four different Congresses which would have funded the project, and the responsible House Committee resolved to postpone further consideration of CAP until a mutual agreement over the use of Colorado River water could be reached by the states.<sup>126</sup> Fighting over the Central Arizona Project finally brought the Grand Canyon State back before the Supreme Court in 1952 in *Arizona v. California*.<sup>127</sup> The United States intervened to claim reserved rights for twenty-five tribal reservations and other federal enclaves.<sup>128</sup> After filing the suit, it took nearly four years for Arizona and California to file pleadings and motions, and to prepare and finalize a pretrial order.<sup>129</sup> In

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<sup>119</sup> Meyers, *supra* note 93, at 40; *Arizona v. California*, 298 U.S. 558 (1936).

<sup>120</sup> Meyers, *supra* note 93, at 40.

<sup>121</sup> REISNER, *supra* note 1, at 259–60.

<sup>122</sup> Meyers, *supra* note 93, at 41; REISNER, *supra* note 1, at 259–60.

<sup>123</sup> Meyers, *supra* note 93, at 41.

<sup>124</sup> *See id.*

<sup>125</sup> REISNER, *supra* note 1, at 257

<sup>126</sup> Meyers, *supra* note 93, at 41.

<sup>127</sup> REISNER, *supra* note 1, at 260–61; 373 U.S. 546 (1963).

<sup>128</sup> Back & Taylor, *supra* note 102, at 77.

<sup>129</sup> Meyers, *supra* note 93, at 42.

1956 the Supreme Court assigned Judge Simon H. Rifkind, a respected federal district court judge who had resigned to establish a litigation practice in New York, to be Special Master over the case.<sup>130</sup> As Special Master it was Rifkind's duty to hold a trial between the parties, make factual inquiries, and ultimately deliver a recommendation to the Supreme Court on the disposition of the case.<sup>131</sup> Rifkind's recommendations would have a direct and lasting impact on the Navajo by failing to adjudicate their water rights along with those belonging to the other five main-stem tribes.<sup>132</sup> The Supreme Court's decision would shape all future litigation of Indian water rights by announcing a uniform standard for determining the amount of water owed under the *Winters* decision.

After two years of testimony, thousands of pages of evidence, and one stress-induced heart attack, Special Master Rifkind delivered his 433-page report to the Supreme Court in late 1960.<sup>133</sup> His first major conclusion was that the Boulder Canyon Project Act was the controlling legislation over the apportionment of lower Colorado River water, and as such Arizona was entitled to the 2.8 million acre-feet in that Act, undiminished by California's overdraw.<sup>134</sup> The second major conclusion in the report cited *Winters* to conclude that the United States had reserved sufficient waters to the tribal reservations to fulfill their purpose.<sup>135</sup> The third major conclusion was that to quantify these rights, a "practicably irrigable acreage" standard should be applied.<sup>136</sup> This allocation scheme accorded with the reasoning in *Winters*. In order to turn nomadic peoples into farmers on some of the most desolate lands in the Southwest, the United States must have reserved water necessary to allow Indians to effectively farm on their new reservations for present and future needs.<sup>137</sup> The decision to exclude the Navajo from adjudicating "main-stem" reservation rights may have been the result of competing legal interpretation and judicial fatigue.

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<sup>130</sup> Meyers, *supra* note 93, at 43.

<sup>131</sup> *Id.*; REISNER, *supra* note 1, at 260–61.

<sup>132</sup> Amy Cordalis & Daniel Cordalis, *Indian Water Rights: How Arizona v. California Left an Unwanted Cloud over the Colorado River Basin*, 5 ARIZ. J. ENVTL. L. & POL'Y 333, 344 (2014).

<sup>133</sup> REISNER, *supra* note 1, at 261; Cordalis & Cordalis, *supra* note 132, at 345.

<sup>134</sup> Cordalis & Cordalis, *supra* note 132, at 345.

<sup>135</sup> *Id.*

<sup>136</sup> *Id.*

<sup>137</sup> REISNER, *supra* note 1, at 260–62. Reisner goes on to accurately characterize what the Navajo entitlement to the Colorado River could be, 600,000 acre-feet, but seems to misidentify it as a right established by *Arizona v. California* as binding against Arizona's entitlement. *Id.*

Special Master Rifkind only took evidence and issued recommendations on five tribal rights on the main-stem Colorado River and the Gila River in Arizona because only these water bodies presented genuine controversies between the parties.<sup>138</sup> He further concluded that tribal rights on tributaries were not within his authority to resolve because those tributaries were not yet over-appropriated and had not diminished the flow of the Colorado River in a sufficient way to bring them into the litigation.<sup>139</sup> Neither of these conclusions would preclude adjudicating Navajo rights. The choice not to adjudicate them came from a faulty interpretation of the Boulder Canyon Project Act. Special Master Rifkind believed that the Act did not apply to waters above Lake Mead and so did not include the Navajo.<sup>140</sup> The Supreme Court disagreed in its decision, and held that the Act reached to Lee Ferry, an additional 275 miles of the Colorado.<sup>141</sup> Those additional miles on the river should have brought the Navajo rights squarely into the litigation.

It is possible that the Supreme Court did not realize that its decision changed the status of the Navajo in the proceedings, or it may be that after nearly ten years of litigation the Court lacked the stamina to remand the case to Special Master Rifkind for further factual determinations.<sup>142</sup> Whatever the reason, in failing to adjudicate the Navajo claim to water, and by adopting the Special Master's recommendations on the applicability of *Winters* and the practicably irrigable acreage standard, the Supreme Court placed the Navajo Nation in the position of needing to seek water in state court adjudications or settlements. It also permitted Arizona to finally seek the funding to build the Central Arizona Project, a massive undertaking requiring a massive electrical generation facility with its own allotment of water.

#### *4. Harmony and Oversight in the Upper Basin Provides NGS Water*

The Upper Colorado River Basin Compact of 1948 would prove much less contentious than the Colorado River Compact. The Upper Basin states also found it much easier to allocate the 7.5 million acre-feet between them than Arizona, California, and Nevada did. Rather than distributing water by fixed amounts, the states agreed that each would take a percentage of the flow for the year, while still delivering the 7.5 million

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<sup>138</sup> Cordalis & Cordalis, *supra* note 132, at 346.

<sup>139</sup> *Id.*

<sup>140</sup> *Arizona v. California*, 373 U.S. 546, 590–91, 595 (1963); Back & Taylor, *supra* note 102, at 78.

<sup>141</sup> *Arizona v. California*, 373 U.S. at 591.

<sup>142</sup> *See* Back & Taylor, *supra* note 102, at 78 n.41.

acre-feet to the Lower Basin states.<sup>143</sup> Colorado, New Mexico, Utah, and Wyoming set the percentages at 51.75 percent, 11.25 percent, twenty-three percent, and fourteen percent, respectively.<sup>144</sup> The Upper Basin Compact also allocated 50,000 acre-feet to the portion of Arizona that drained into the Colorado above Lee Ferry, to include Chinle Creek, a tributary of the San Juan River, and Navajo Creek, which runs directly into Lake Powell northeast of Glen Canyon Dam.<sup>145</sup>

By its terms and design the Upper Basin Compact is subject to the terms of the 1922 Colorado River Compact and is meant to dovetail with that agreement. Unfortunately, this means that the ambiguities of the original compact were further embedded in the Law of the River. Much like the original, Article XIX states that “nothing in this Compact shall be construed as affecting the obligations of the United States of America to Indian Tribes.”<sup>146</sup> Commissioner Stone of Colorado explained that, “It would be dangerous for these states to insert language in this compact on this subject which might not be acceptable to the other signatory states of the Colorado River Compact States.”<sup>147</sup> Stone also noted that it was not within the power of the Commission to settle Indian water rights questions, since those are within the purview of the federal government. However, Article VII of the Upper Basin Compact did provide that the “consumptive use of water by the United States or any of its agencies, instrumentalities or wards shall be charged as a use by the state in which the use is made.”<sup>148</sup>

As domestic and dependent nations in a state of pupilage, the Navajo and Hopi most certainly qualify as wards under Article VII of the Upper Basin Compact. This provision would deduct any consumption of Colorado River water, or that of its tributaries, by the tribes in the Upper Basin from Arizona’s 50,000 acre-feet.

Following the Upper Basin Compact, the Colorado River Storage Project Act (“CRSPA”) of 1956 authorized the construction of Glen Canyon Dam, created Lake Powell, and provided the water necessary to run the NGS to pump water through the Central Arizona Project.<sup>149</sup> The Act also expanded the Secretary of the Interior’s authority to encompass the entire river system, as the CRSPA required water users to contract with the Bureau of Reclamation for water delivery.<sup>150</sup> Because the Secretary is

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<sup>143</sup> Robison, *supra* note 93, at 523.

<sup>144</sup> *Id.*

<sup>145</sup> *See id.* at 484, 523.

<sup>146</sup> Back & Taylor, *supra* note 102, at 79.

<sup>147</sup> *Id.* at 80–81.

<sup>148</sup> *Id.* at 79.

<sup>149</sup> *Id.* at 81.

<sup>150</sup> *Id.* at 82.



bound by the Compacts and Acts concerning the Colorado River in making contracts and deliveries, all Indian water claims on the River will also fall under the purview of these documents. Critically, the CRSPA also failed to account for or mention Indian water rights.<sup>151</sup>

Despite the lack of tribal involvement in the formation of the Law of the River, this framework of laws changed the face of the Navajo and Hopi Nations by driving urban, industrial, and agricultural growth across the West.

### *E. Water, Steam, Turbines, and the Navajo*

When the original three units of the NGS fired up, it was Arizona's Upper Basin water allotment which provided electricity to bring water to the Valley of the Sun. Though the Tribe was not present at the Upper Basin Compact negotiations and did not waive any claims nor consent to be limited to the terms of the compact, it has made several agreements pursuant to the compact's terms to make the NGS possible.<sup>152</sup>

Resolution CJY-95-66 of the Navajo Tribal Council explicitly lays claim to the 50,000 acre-feet of water allotted to Arizona under the Upper Basin Compact, and notes that the Secretary of the Interior and Governor of Arizona announced that the water could and should be used for the Navajo Reservation.<sup>153</sup> The resolution then memorializes Peabody Coal's offer to purchase coal for the Mohave Generating Station and build a power plant near Lake Powell.<sup>154</sup> Because 10,000 acre-feet of water were deemed to have already been used consumptively, the Tribe recommended to the Secretary of the Interior, as the Colorado River Water Master and ultimate decision-maker as the Tribe's trustee, that the remaining 40,000 acre-feet be dedicated to the new generating station and coal slurry to Mohave.<sup>155</sup> This initial support was crucial to the development of a coal-fired powerplant and laid the groundwork for a much more specific and expansive resolution two years later.

Tribal Resolution CD-108-68 contained the specific terms by which the Navajo would agree to the Salt River Project's use of Arizona's Upper

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<sup>151</sup> *Id.*

<sup>152</sup> *Upper Basin Colorado River (Arizona)*, NAVAJO NATION WATER RIGHTS COMM'N, <https://web.archive.org/web/20190414154622/http://www.nnwrc.navajo-nsn.gov/Upper-Basin-Colorado-River/Upper-Basin-Colorado-River-Arizona> (last visited Feb. 4, 2020).

<sup>153</sup> Res. of the Navajo Tribal Council, CJY-95-66, § 10 (1966) (Peabody coal proposal for a coal-fired steam generating plant).

<sup>154</sup> *Id.* § 9.

<sup>155</sup> *Id.* § 1.

Basin Compact allocation.<sup>156</sup> The Navajo promised the Secretary that the Tribe would not to make demands on the Colorado River in excess of 50,000 acre-feet, of which 34,100 acre-feet would be used by the NGS for fifty years or the lifetime of the power plant.<sup>157</sup> In return, the Secretary promised: preferential tribal hiring, fuel would be purchased from Black Mesa Mine, the plant would provide power to the tribal utility for use on-reservation, sales would contribute money to the Navajo Community College, and that if any water was imported into the Colorado River basin, the first 34,100 acre-feet would be allocated to the Navajo Tribe for its exclusive use and benefit.<sup>158</sup> Similarly, and crucially for our analysis, paragraph six states:

If, for any reason, this resolution is terminated or expires by reason of the terms and conditions contained in this resolution, the Secretary of the Interior shall take the necessary action to have the 34,100 acre-feet of water per year, allocated to the coal-fuel power plant on the Navajo Reservation near Page, Arizona, returned to the Navajo Tribe for their exclusive use and benefit.<sup>159</sup>

The final relevant Tribal Resolution was CJN-50-69, which committed 3,000 acre-feet to the Glen Canyon Unit for community and recreation developments in Page, Arizona.<sup>160</sup> CJN-50-69 also sheds some interpretive light on the prior two resolutions, “It was the intent and understanding of CD-108-68 to preserve all present or prospective water rights of the Navajo Tribe.”<sup>161</sup>

With the Navajo Tribal agreements in hand, the Salt River Project (“SRP”) entered into a contract for water service with the United States for 40,000 acre-feet per year from Lake Powell, 34,100 acre-feet per year for consumptive use at the NGS and the remaining 5,900 acre-feet per year for non-consumptive use at the plant.<sup>162</sup> The contract, signed in 1969, had

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<sup>156</sup> Res. of the Navajo Tribal Council, CD-108-68 (1968) (allocating 34,100 acre-feet of water from the Upper Colorado River Basin and limiting the Navajo Tribe’s claim to 50,000 acre-feet per year).

<sup>157</sup> *Id.* § 1.

<sup>158</sup> *Id.* § 2.

<sup>159</sup> *Id.* § 6.

<sup>160</sup> Approving the Use of 3,000 Acre-Feet of Water from the 50,000 Acre-Feet of water per year allocated to the State of Arizona under Article III(a) of the Upper Colorado River Basin Compact to be used for recreation and by the City of Page, Arizona, at Res. of the Navajo Tribal Council, CJN-50-69, § 1 (1969).

<sup>161</sup> *Id.* § 2.

<sup>162</sup> U.S. BUREAU OF RECLAMATION, SALT RIVER PROJECT, SYNOPSIS OF DOCUMENTS: NAVAJO GENERATING STATION AND KAYENTA MINE 3 (2017), <https://www.usbr.gov/lc/phoenix/reports/NGS/EAFONSI/SynopsisNGSKMDocs.pdf>.

an initial forty-year term with rights of renewal, and was renewed for twenty years in 2012.<sup>163</sup> SRP then received two water rights certificates from the Arizona Department of Water Resources. The first has a priority date of December 18, 1964 for 23,065 acre-feet per year and expires December 18, 2044. The second has a priority date of April 9, 1969 for 5,644 acre-feet per year and expires on April 9, 2049.<sup>164</sup> Together, these three documents describing the water presently used by the NGS represent the quantities and methods required by any future use.

#### *F. State and Federal Paths to Beneficial Use*

When the NGS shuttered in December of 2019, two separate bodies of water law affected the reallocation of its water. First, the contract between SRP and the United States Government for 40,000 acre-feet will need to be cancelled, freeing that water for new uses. Any new allocation of this water from Lake Powell will require a new long-term contract between the receiving entity and the Bureau of Reclamation under the auspices of the Upper Basin Compact. Second, the water permits granted by the Arizona Department of Water Resources will either be rescinded through an administrative action, or five years of non-use by the NGS will revert the rights to the public and be subject to appropriation.<sup>165</sup> The Navajo Nation, as a new user of this water with a new beneficial use, will need to apply to the Department of Water Resources for a new permit detailing the intended use, place of use, and other technical information for a decision by the Department.<sup>166</sup> A Navajo application for both of these agreements will take place in a Colorado River basin much changed from 1922, 1963, and 1956.

#### *G. Current Status of the Colorado River Basin*

From Colorado to California, the basin's population continues to grow, demands on the Colorado River are increasing by all sectors of use, and drought and climate change are diminishing the availability of Colorado River water.<sup>167</sup> Between 2003 and 2018 the average Colorado River flow diminished by nearly twenty percent from historical

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<sup>163</sup> *Id.*

<sup>164</sup> *Id.*

<sup>165</sup> Ariz. Rev. Stat. § 45-141(C) (2019).

<sup>166</sup> Ariz. Rev. Stat. § 45-152 (2019).

<sup>167</sup> See Paige Blankenbuehler, *How Best to Share the Disappearing Colorado River*, HIGH COUNTRY NEWS (Dec. 20, 2018), <https://www.hcn.org/articles/water-how-best-to-share-the-drought-plagued-colorado-river>.

averages.<sup>168</sup> Climate scientist Brad Udall predicts that the flow of the river could be reduced another fifty-five percent by 2100 because of climate change,<sup>169</sup> a disturbing prediction compounded by ongoing development and interpretation of paleoclimatic reconstruction of the region. Tree-ring records from northwest New Mexico indicate that during the last 2000 years there have been many droughts which lasted longer and were much more severe than those of the last 110 years.<sup>170</sup> It is now abundantly clear that the key negotiations at Bishop's Lodge in 1922 were based on flows recorded during some of the wettest twenty years in the history of the West.<sup>171</sup>

The overly optimistic assessment of Colorado River flows in that first agreement, and the addition of a 1.5 million acre-foot commitment by the 1944 treaty with Mexico, has led to a "structural deficit" in the Law of the River.<sup>172</sup> The target release from Lake Powell to Lake Mead, which acts as the primary Colorado River source for the Lower Basin states and Mexico, has been between 8.23 million acre-feet and 7 million acre-feet.<sup>173</sup> While this amount is sufficient to account for Lower Basin consumptive uses, it does *not* account for evaporation loss, transmission loss, or the thirsty use of water by deep-rooted plants called phreatophytes. At the higher release figure of 8.23 million acre-feet, Lake Mead will lose 1 million acre-feet each year to these unaccounted-for losses.<sup>174</sup> Reduced inflows from drought and climate change have combined with the structural deficit to deplete Lake Mead storage from 22.444 million acre-feet in 2000 to 9.85 million acre-feet in 2015.<sup>175</sup> Lake Powell and Lake Mead combined in January of 2019 were below forty-six percent of capacity, the lowest since Lake Powell began filling.<sup>176</sup>

The depletion of Lake Powell and Lake Mead have triggered fears that either reservoir could fall below the level required for the dams to

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<sup>168</sup> *Id.*

<sup>169</sup> *Id.*

<sup>170</sup> *Drought in the Colorado River Basin*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., NAT'L CTRS. FOR ENVTL. INFO., <https://www.ncdc.noaa.gov/monitoring-references/dyk/colorado-basin-drought> (last visited Feb. 13, 2020).

<sup>171</sup> *Id.*

<sup>172</sup> REISNER, *supra* note 1, at 259 (commitment to Mexico); Robison, *supra* note 93, at 537 (structural deficit).

<sup>173</sup> *Id.* at 537–38.

<sup>174</sup> *Id.*

<sup>175</sup> *Id.* at 539.

<sup>176</sup> Brian Maffly, *Lake Powell Could Become a 'Dead Pool' as Climate Change, Political Wars and Unabated Growth Drain its Waters*, SALT LAKE TRIB. (Jan. 20, 2019), <https://www.sltrib.com/news/environment/2019/01/20/lake-powell-could-become/>.

produce hydropower, or “power pool.”<sup>177</sup> This would certainly impact the electrical grid, but such a reduction would also remove the largest source of funding for federal water-infrastructure projects across the West, most of which receive their funding from surplus electricity sales at the basin’s hydroelectric dam sites.<sup>178</sup> A further reduction below power pool could result in “dead pool” in the reservoirs, the point at which the dams could not actually release the water still in their reservoirs for downstream use.<sup>179</sup> There are differing perspectives on how imminent these possibilities are, but the general trend in reduced flows has motivated the Bureau of Reclamation and all seven states of the Colorado River Basin to preserve the status quo.<sup>180</sup>

A major reaction to shortage in the Colorado River Basin came in the 2007 when the Bureau of Reclamation adopted the Interim Guidelines.<sup>181</sup> These guidelines establish a tiered-reduction in consumptive use by Arizona and Nevada if Lake Mead’s surface-level drops below specified elevations.<sup>182</sup> California suffers no cuts to its allotment because of a major political compromise negotiated during the Colorado River Basin Project Act. In order to receive funding to move its Colorado River entitlement won during *Arizona v. California*, Arizona had to agree that California’s 4.4 million acre-foot apportionment must be satisfied before water is supplied through the Central Arizona Project.<sup>183</sup> Other programs to conserve water for storage in the reservoirs, intentionally creating surplus, and water banking programs have been piloted across the river system.<sup>184</sup>

Still, these efforts came short of eliminating the structural deficit, much less addressing the future aridification of the West.<sup>185</sup> Under threat of the federal government taking control of water-allocation during a shortage, the Lower Basin states approved a further plan to reduce water use in times of shortage called the “Lower Basin Drought Contingency

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<sup>177</sup> *Id.*

<sup>178</sup> See Robison, *supra* note 93, at 542; Maffly, *supra* note 176.

<sup>179</sup> Maffly, *supra* note 176.

<sup>180</sup> See John Fleck, *No, Lake Powell Is Not Inexorably Headed Toward “Dead Pool,”* INKSTAIN (Jan. 20, 2019, 3:10 PM), <http://www.inkstain.net/fleck/2019/01/no-lake-powell-is-not-inexorably-headed-toward-dead-pool/>.

<sup>181</sup> Robison, *supra* note 93, at 542.

<sup>182</sup> *Id.*

<sup>183</sup> *Id.* at 535.

<sup>184</sup> See *id.* at 543–52.

<sup>185</sup> See Eric Kuhn, *Why Does the Lower Basin Need a Drought Contingency Plan?*, INKSTAIN (Feb. 24, 2019, 4:16 PM), <http://www.inkstain.net/fleck/2019/02/why-does-the-lower-basin-need-a-drought-contingency-plan>.

Plan.”<sup>186</sup> Together, the 2007 Interim Guidelines and the Lower Basin Drought Contingency Plan cut deep enough into the Lower Basin allotment for California to suffer some reductions, but the total amount is still just above the structural deficit.<sup>187</sup> Despite these political successes, the lack of a concrete plan to proactively manage climate change and to permanently reduce Colorado River water use makes the future management of the basin difficult to predict. Brad Udall was correct in his assessment that, “agreeing on reductions that cause the least harm to water users, the overall economy and the environment will be an exceedingly difficult task, much harder to come by than those achieved in the [Drought Contingency Plan].”<sup>188</sup> Contributing to these difficulties are the as-yet unresolved claims of Indian Tribes on the Colorado and its tributaries.

Joining the Navajo in the Lower Basin without quantified water rights are the Havasupai Tribe, Hopi Tribe, Hualapai Tribe, Kaibab Band of Paiute Indians, Pascua Yaqui Tribe, San Carlos Apache Tribe, San Juan Southern Paiute Tribe, Tohono O’odham Nation, Tonto Apache Tribe, and Yavapai Apache Nation.<sup>189</sup> Some tribes have claims which are moving forward slowly in negotiation or litigation, such as the Hopi rights to the Little Colorado, but overall progress is meager.<sup>190</sup> As states work to reduce their demand on the Colorado, with the threat of drastic reductions in times of shortage, they are unlikely to move quickly to incorporate the large, senior tribal rights into their state allocations. The Navajo will have to negotiate or litigate for the water formerly used by the NGS in this new environment of scarcity. Though the process is unlikely to be easy, the Navajo possess unique legal and physical advantages in their claim for this portion of the Colorado River.

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<sup>186</sup> *Id.*; Jeremy P. Jacobs, *States Reach Drought Pact as Largest User Protests*, GREENWIRE (Mar. 20, 2019), <https://www.eenews.net/greenwire/stories/1060127745/search?keyword=States+reach+drought+pact+as+largest+user+protests>; Kuhn, *supra* note 185.

<sup>187</sup> Kuhn, *supra* note 185.

<sup>188</sup> *The State of Water Supply Reliability in the 21<sup>st</sup> Century: Hearing Before the Subcomm. on Waters, Oceans, and Wildlife of the H. Comm. on Nat. Res.*, 116th Cong. 14 (2019) (statement of Brad Udall).

<sup>189</sup> Cordalis & Cordalis, *supra* note 132, at 357.

<sup>190</sup> See Hopi Tribal Government, *Little Colorado River Adjudication: Statement from the Hope Tribe*, TRIBAL GOV’T, <http://hopitewacomunitymovement.org/little-colorado-river-adjudication-statement-from-the-hopi-tribe/>.

### III. REASONS TO SETTLE NAVAJO CLAIMS TO NGS WATER

The Law of the River, the tribal resolutions which lead to the construction of the NGS, and notions of equity all suggest that the Navajo should be able to use the NGS water allotment for domestic, municipal, agricultural, and industrial uses. The major questions are how the Navajo can accomplish this outcome and what amount of water the Tribe should be entitled to. Litigation under the *Winters* standard would likely produce a large paper right, but without buy-in from the federal and Arizona state governments it is unlikely that infrastructure could be funded to put those rights to use. Instead, the Navajo should negotiate with the state of Arizona to settle its Upper Basin claims. The Tribe is in an advantageous position because any water it gains from such a settlement would not displace other state-permitted users, which can act as a major political hurdle to Indian water rights settlements. When considering an eventual use for the water, striking a deal with Arizona may also help secure funding to complete water-project infrastructure which could take advantage of the battery of water pumps already reaching into Lake Powell for NGS use.

#### A. *NGS Water Should be Available to the Navajo*

The Navajo Nation makes up nearly the entire Upper Basin portion of Arizona, excluding relatively small non-reservation enclaves like Page. In negotiating the Upper Basin Compact, the states intended for the waters to be allocated and used in the Upper Basin in such a way as to not hinder deliveries at Lees Ferry. Other than the water presently dedicated in CD-108-68 to use by Page and the Glen Canyon Unit, and any other non-Indian use perfected prior to 1948, the Upper Basin 50,000 acre-feet should be free for use by the Navajo due to the geographic reality of Upper Basin Arizona.

Though the Navajo did not negotiate the Colorado River Compact or the Upper Basin Compact, their agreement to abide by them made the NGS and the Central Arizona Project possible. The tribal resolutions clearly show that the Tribe was assenting to the use of the water on the condition that it would eventually be returned for tribal use and that both the Secretary of the Interior and the Governor of Arizona had indicated their support for such a disposition of Arizona's allotment.<sup>191</sup>

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<sup>191</sup> Res. of the Navajo Tribal Council, CJY-95-66, § 10 (1966) (Peabody coal proposal for a coal-fired steam generating plant).

Running through the story of the Navajo Nation, and through any tribe seeking to quantify Indian water rights, is the question of equity. What is fair when we consider a history of settler colonialism across North America, and the history of the Navajo in particular? Professor Sarah Krakoff argues that instead of “punishing tribes for being ‘Johnny-come-lately’ to our water allocation schemes, stakeholders could see tribes as equals, coming to the table as governments finally able to assert their interests after decades of attempts to marginalize them.”<sup>192</sup>

Our treatment of the Navajo claims to the NGS water should recognize the tribe’s claim as a matter of environmental, economic, and social justice. The Tribe was resettled on their native lands near the Four Corners and came to inhabit the entire Upper Basin portion of Arizona. This is an administrative area created without the Navajo Nation’s participation, but one to which the Tribe agreed to adhere. Without that agreement, NGS would not have been built, and millions of Arizonans would not have received Colorado River water to help their economies and communities prosper. Even though the Tribe did benefit from jobs and lease revenues, the relationship between the Tribe and the far-away cities was essentially an extractive one. The industry and business the Navajo hoped to attract instead anchored itself in white communities at the end of the high-voltage transmission lines. Instead of “two lights in every Hogan,” the Navajo instead found themselves a colonized territory within the boundaries of the Southwest and the United States.<sup>193</sup>

Peter MacDonald, Navajo chairman from 1970 until 1989, summed up the relationship in 1973: “Think for a minute about how it feels to be a Navajo shivering through a cold winter on Black Mesa in a Hogan without electricity or gas or water, while at the same time you watch well-paid Anglo workers assemble a ten or \$15 million drag line only a few hundred yards from your front door.”<sup>194</sup> That same drag line was destroying native land for coal to fire the NGS. The NGS’s operation polluted the air above Navajo and Hopi communities in order to pump water uphill from Lake Havasu to Phoenix in order to provide water at below market rates.<sup>195</sup>

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<sup>192</sup> Sarah Krakoff, *Settler Colonialism and Reclamation: Where American Indian Law and Natural Resources Law Meet*, 24 COLO. NAT. RES. ENERGY & ENVTL. L. REV. 261, 285 (2013).

<sup>193</sup> NEEDHAM, *supra* note 48, at 218.

<sup>194</sup> *Id.* at 231.

<sup>195</sup> Not only do customers pay little for “what should be very expensive water,” but CAP receives the same kind of federal funding largesse seen in other Bureau of Reclamation projects in terms of its capital interest rate and payment schedule, *see* Tony Davis, *Central Arizona Project Asks to Refinance its Debt*, TUSCON.COM (Oct. 25, 2016), [https://tucson.com/news/local/central-arizona-project-asks-to-refinance-its-debt/article\\_f50bb154-f0c2-52b8-a926-d8ba2d635819.html](https://tucson.com/news/local/central-arizona-project-asks-to-refinance-its-debt/article_f50bb154-f0c2-52b8-a926-d8ba2d635819.html).



While the NGS's water is unlikely to serve as a panacea for Navajo communities in Upper Basin Arizona, its allocation to them could be a first step towards the kind of economic self-determination Chairman Paul Jones had envisioned at the dedication of the Four Corners Generating Station.

### *B. Water and Uncertainty in Winters Litigation*

Litigation over Indian water rights has been on the wane for several decades for several reasons. The real costs in time and money of litigating, combined with an uncertain outcome, deter tribes and states from seeking out reserved rights in court. A pressing example is *In Re General Adjudication of Big Horn River System*, a decision by the Supreme Court of Wyoming awarding water rights to the Shoshone and Arapaho Tribes on the Wind River Reservation.<sup>196</sup> The case took a decade to reach the Wyoming Supreme Court in 1988, and affirmed a right to nearly half a million acre-feet of water to irrigate 100,000 acres under the practicably irrigable acreage ("PIA") standard set in *Arizona v. California*.<sup>197</sup> While the award was substantial, actual benefits to the tribes have been illusory. The large water right decreed came with no funds to build infrastructure to deliver water to the tribes, and the right was interpreted solely for agricultural, municipal, and livestock use, which prevented the tribes from applying the water to beneficial in-stream uses to restore fisheries.<sup>198</sup> Thirty years later, the tribes are still not benefiting from their water rights as the state, tribes, and federal government continue to disagree how to share the costs of necessary infrastructure to put the water to beneficial use.<sup>199</sup>

Hollow victories like the Big Horn adjudication frustrate tribal attempts to develop their water rights, but also present risks to states seeking to minimize disruption to the status quo. One of the major reasons the Special Master in *Arizona v. California* addressed Indian water rights was because a failure to adjudicate such claims would leave a "cloud" over the legal certainty of water for non-Indian projects in the basin.<sup>200</sup> Continued development on all river systems without taking account for

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<sup>196</sup> *In re Gen. Adjudication of All Rights to Use Water in the Big Horn River Sys.*, 753 P.2d 76, 94 (Wyo. 1988).

<sup>197</sup> *Id.* at 112.

<sup>198</sup> Michael C. Blumm et al., *The Mirage of Indian Reserved Water Rights and Western Streamflow Restoration in the McCarran Amendment Era: A Promise Unfulfilled*, 36 ENVTL. L. 1157, 1174–76 (2006).

<sup>199</sup> BARTON H. THOMPSON ET AL., *LEGAL CONTROL OF WATER RESOURCES: CASES AND MATERIALS* 1136 (6th ed. 2018).

<sup>200</sup> Cordalis & Cordalis, *supra* note 132, at 346.

Indian water rights has only darkened that cloud as more state rights appropriators invest money in water projects, and increase their reliance on the present priorities of allocation. The Supreme Court's PIA standard has major implications for water administration in states with large Indian reservations, especially given the broad "homeland" standard the Arizona Supreme Court subsequently established to account for all possible needs on the reservation, rather than the pure agriculture stance adopted by Wyoming.<sup>201</sup>

For a sense of scale, the Navajo reservation is larger than West Virginia and contains 13 million irrigable acres.<sup>202</sup> Irrigating this total irrigable acreage would require upwards of 50 million acre-feet of water, more than three times the annual flow of the Colorado River. A conservative estimate of 500,000 practicably irrigable acres, or only four percent of the reservation's land base, would still require 2 million acre-feet of water per year.<sup>203</sup> Arizona is only entitled to 2.4 million acre-feet each year from the Colorado River. Such an award would not only threaten to upset the expectations of Arizona water users, but also threaten the entire framework of the Law of the River.

The possibility of a major upset to the entire Law of the River scheme should be enough to entice Arizona to the settlement table for the Navajo Upper Basin claims. Even though *Arizona v. California* established that federal water uses should be charged against the state in which they occur, Indian water rights established prior to 1927 are considered "present perfected rights" and are not subject to this limitation.<sup>204</sup> Almost all Navajo lands were created prior to this date, including the Upper Basin Arizona portion, so the 50,000 acre-foot limitation on Arizona's use in the Upper Basin Compact would not seem to affect Navajo claims.<sup>205</sup> As Northcutt Ely, chief counsel for California in 1955, stated: "If [Indian rights are] inside, and as large as claimed, the Compact is splitting at the seams, and if outside, busted."<sup>206</sup>

### C. Settlement

Reacting to the undesirable realities and outcomes of litigation, states and tribes are coming together to negotiate tribal water rights settlements.

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<sup>201</sup> See Barbara A. Cosens, *The Measure of Indian Water Rights: The Arizona Homeland Standard, Gila River Adjudication*, 42 NAT. RESOURCES J. 835 (2002).

<sup>202</sup> Back & Taylor, *supra* note 102, at 74, n.12.

<sup>203</sup> *Id.* at 74.

<sup>204</sup> *Id.* at 88–89.

<sup>205</sup> *Id.* at 89.

<sup>206</sup> *Id.* at 90.

Negotiations between the parties produce an agreement, which is then ratified by Congress and state legislatures and finally used as a basis for a judicial decree by the court charged with administering the new right.<sup>207</sup> While preferable to litigation, negotiations are not without difficulty. Parties need to be willing to come to the table, and the political process which follows an agreement can require patience and clever maneuvering, but the process has proven fruitful. Between 1978 and 2016 Congress ratified thirty such settlements, ranging from 1,500 acre-feet to 653,500 acre-feet per year, often carrying with them the allocation of funds to put the settled water to use.<sup>208</sup>

The Navajo themselves are on the brink of settling their Upper Basin claims in Utah. In 2016, the Tribe and the state agreed that 81,500 acre-feet of Utah's unused Colorado River allocation would be allotted to the Navajo.<sup>209</sup> Senator Mitt Romney introduced a bill in early April 2019 which would ratify this agreement and provide \$210 million from the federal government and \$8 million from Utah for water infrastructure to put the water to use. The Navajo had originally claimed twice as much water, but as the Associated Press noted, tribes will often settle claims in exchange for the funding necessary to actually use the water.<sup>210</sup> If the bill passes, it will be a major settlement outcome for the Navajo in Utah, but one which is markedly different from what is likely to emerge in Arizona.

Utah, like the rest of the Upper Basin states, has consistently failed to use its full allocation under both the Colorado River Basin Compact and the Upper Basin Compact. In 2017, Utah used only 1.008 million acre-feet of its 1.369 million acre-feet allocation.<sup>211</sup> This left 361,000 acre-feet of water available for settling Indian water rights while still allowing other new agricultural and industrial uses. Arizona is in a fundamentally different position than Utah, having already developed its entire Colorado River allotment and being bound by the terms of the Upper Basin Compact for the portion of the state in the Upper Basin. With this reality in mind,

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<sup>207</sup> THOMPSON et al., *supra* note 199, at 1137.

<sup>208</sup> COHEN'S HANDBOOK OF FEDERAL INDIAN LAW § 19.05[2] n.48 (Nell Jessup Newton, ed., 2012).; THOMPSON ET AL., *supra* note 199, at 1139.

<sup>209</sup> Associated Press, *Bill in Congress Would Resolve Large Navajo Water Rights Claim in Utah*, KNAU.ORG, (Apr. 16, 2019), <https://www.knau.org/post/bill-congress-would-resolve-large-navajo-water-rights-claim-utah>.

<sup>210</sup> *Id.*

<sup>211</sup> The calculation is based on "current hydrology" and not just the terms of the Law of the River, in which the Upper Basin receives 6 million acre-feet rather than 7.5. Eric Millis, *State of the Colorado River and Implications for Utah*, UTAH DIVISION OF WATER RESOURCES, <https://www.coloradomesa.edu/water-center/forum/comesau17finalmills.Pdf>.

the first and critical question to be answered is, what amount should the Tribe be entitled to?

*1. What Amount?*

The closure of the NGS presents a rare opportunity in Indian water settlements because water is available in several defined amounts. Further, allocating that water to Indian uses will not reduce the amount of water available to current appropriators. If we assume that any settlement will be bound by the terms of the Upper Basin Compact, negotiators have a total of 50,000 acre-feet to allocate between all Upper Basin Arizona users.

The Navajo Nation promised not to claim more than 50,000 acre-feet of water so long as the NGS remained in operation. The investing utilities required this assured supply of water to finance the plant's construction, and the plant's water counts towards Arizona's allotment pursuant to the Upper Basin Compact and the Colorado River Basin Project Act ("CRBPA").<sup>212</sup> The Navajo could leverage the terms of the Compact and the CRBPA and promise to completely settle the question of Upper Basin lands within their framework. Roughly 37,000 acre-feet remain in Arizona's allotment, taking account of pre-existing uses and the Glen Canyon Unit recreational water. This amount of water would appeal to state interests by keeping Arizona within the limits imposed by the Upper Basin Compact and avoid triggering the overdraft provisions of that agreement. It would also allow the Navajo Nation to benefit from the water all parties agreed was meant for their use during the construction of the NGS. Most plainly, an allocation to the Navajo Nation would accord with the basic reality that practically the entire Upper Basin portion of the state is composed of reservation lands.

Unfortunately, the promise to limit claims to the Upper Basin Compact terms may not be enough to induce Arizona to come to the negotiating table. Not only does Arizona hold the power to permit any new water uses, but it is facing the prospect of drastic cuts to its entitlement under the Interim Guidelines and Drought Contingency Plan. Two other possible allotments, related directly to the operation of the plant, present themselves. Each would leave a larger portion of the NGS water in the river for future uses, to ensure compact compliance, or simply to maintain the levels of both Lake Powell and Lake Mead.

The first of these would be the 34,100 acre-feet consumptively used by the plant, leaving the remaining 2,900 acre-feet in storage. There is a certain clean-cut logic in this position, as it represents the amount actually

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<sup>212</sup> Back & Taylor, *supra* note 102, at 286; The Colorado River Basin Project Act, 43 U.S.C. § 1523(d) (2018).

used in the operation of the NGS. The next amount of water related to the plant's operation is 22,733 acre-feet of water. This is the amount used by the plant since the EPA ordered one of the generators shut down to comply with federal emissions standards in 2014.<sup>213</sup> Since the unit was shuttered, one-third of the consumptive water and non-consumptive water associated with the unit has been left in Lake Powell and has served as an unacknowledged buffer for the reservoir's diminishing levels.

A sense of equity and social justice demand the remainder of Arizona's 50,000-acre-foot allotment go to the Navajo. However, it may be necessary to accept a position in which Arizona retains some amount of that water to bring the state to the negotiating table. Concessions are likely necessary to secure congressional approval for the settlement and to receive funding to put any amount of water to use on the reservation.

## 2. *The Long Road to Water Service*

Even though the NGS closure is an opportunity for the Navajo Nation to secure additional water supplies, it may be decades before water flows to new taps. The Nation's experience in Utah should be informative. Settlement negotiations began in 2003, but the proposed settlement was not reached and approved by the state of Utah until 2015, with the Navajo Nation Council approving the settlement a year later in 2016.<sup>214</sup> The Senate Committee on Indian Affairs did not advance the Settlement Act until May 15, 2019.<sup>215</sup> If approved by the entire Congress and signed by the President in this session, it will join a backlog of Indian water projects, some of which have been authorized but are unfunded.

In early 2019, the Department of Interior estimated that the Bureau of Reclamation had a backlog of \$1.3 billion in authorized but unfunded water rights settlements.<sup>216</sup> These projects are funded through a combination of discretionary and mandatory funding, with each settlement's terms and funding varying on the specific facts of the settlement at issue.<sup>217</sup> The Bureau of Reclamation has identified

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<sup>213</sup> Ryan Randazzo, *EPA Approves Plan to Curtail Operations at Navajo Generating Station*, AZCENTRAL.COM (Jul. 28, 2014), <https://www.azcentral.com/story/money/business/2014/07/28/epa-approves-plan-curtail-operations-navajo-generating-station/13277331/>.

<sup>214</sup> Press Pool, *Navajo Utah Water Settlement Act Moves Forward*, INDIAN COUNTRY TODAY (May 20, 2019), <https://newsmaven.io/indiancountrytoday/the-press-pool/navajo-utah-water-settlement-act-moves-forward-4kzGkxWksEKC0mWJtPu-BA/>.

<sup>215</sup> *Id.*

<sup>216</sup> CHARLES V. STERN, CONG. RESEARCH SERV., R44148, INDIAN WATER RIGHTS SETTLEMENT 18 (2019), [https://www.everycrsreport.com/files/20190416\\_R44148\\_22b48f9eba10cf0734b8ef4694619fa217bb2d04.pdf](https://www.everycrsreport.com/files/20190416_R44148_22b48f9eba10cf0734b8ef4694619fa217bb2d04.pdf).

<sup>217</sup> *Id.*

continuous and sustainable funding as a challenge for tribal governments and communities seeking water supply and treatment infrastructure.<sup>218</sup> Receiving funding as part of the settlement process is important because tribes “have limited access to traditional forms of funding such as property taxes, rate increases, assessments and municipal bonds” because of the unique trust status of their lands and pervasive poverty on and near reservations.<sup>219</sup> The long process to negotiate a settlement—and the difficulty of constructing new infrastructure—present the Navajo Nation with an urgent need to begin maneuvering for its water rights.

#### IV. POSSIBLE USES OF NGS WATER

In the West, water is the limiting factor for any kind of development, whether it be municipal, industrial, or agricultural. The Navajo Nation should be able to use the water from NGS, in whatever amount can be settled, to achieve their vision of economic and cultural self-determination. There are two promising ways the Tribe could start this process. First, the existing electric and water infrastructures make the NGS site a prime candidate for development as a solar power production facility. This could be done by the Navajo Tribal Utility, or in partnership with an independent project finance company, and could help offset the loss of a portion of the jobs and revenue previously provided by the power plant. Second, and more urgently, the water could be used to improve access to water in Navajo homes for basic domestic use. The NGS helped provide millions of Arizonans with the water necessary to prosper and thrive in the desert by delivering water uphill in the Central Arizona Project aqueduct. It is only fair that the Navajo themselves should be able to reap the same kind of benefit from the NGS’s legacy.

##### *A. Water Could Be Used for Solar Redevelopment of NGS*

The NGS will leave behind a robust set of water, transmission, and physical infrastructure when it closes. This infrastructure makes the site a prime candidate for an expansion of the Navajo Tribal Utility’s solar power portfolio or for an independent project finance company to develop in partnership with the Nation.

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<sup>218</sup> BUREAU OF RECLAMATION, COLORADO RIVER BASIN TEN TRIBES PARTNERSHIP TRIBAL WATER STUDY 7-12 (2018), <https://www.usbr.gov/lc/region/programs/crbstudy/tws/docs/Ch.%207%20Challenges%20and%20Opportunities%2012-13-2018.pdf>.

<sup>219</sup> *Id.* at 7-12, 7-13.

The potential for solar development in the area has already been proven by the Navajo Tribal Utility Authority, which began operating its Kayenta Solar Facility in 2017 less than 100 miles from Page.<sup>220</sup> The 27.3-megawatt Kayenta facility provides enough electricity for about 13,000 homes.<sup>221</sup> Arizona is an attractive location for further development because of its extremely strong solar production potential, with a considerable land mass at the top of the fifty-state resource range of more than 5.75 kWh/m<sup>2</sup>/day.<sup>222</sup> Much of the Navajo and Hopi reservations have resource ranges of 5.25 to 7.5 kWh/m<sup>2</sup>/day.<sup>223</sup> For comparison, the highest production potential is 5.5 kWh/m<sup>2</sup>/day in Colorado and Georgia,<sup>224</sup> 4.5 kWh/m<sup>2</sup>/day in New England,<sup>225</sup> and 4.5 kWh/m<sup>2</sup>/day in Washington State.<sup>226</sup>

Beyond solar potential, water is needed in solar photovoltaic projects for construction of the facility and for panel cleaning during ongoing operations. A good planning estimate calls for roughly 16,689 gallons of water per megawatt per year.<sup>227</sup> This is a meager amount of water when we consider that the Central Arizona Project alone delivers more than 500 billion gallons of water to Arizonans annually.<sup>228</sup> Yet, securing the water necessary to operate a solar array is a major obstacle to renewable energy development on Native American reservations in water-scarce regions.

The Jemez Pueblo Tribe in New Mexico sought to build a modest 3.5-megawatt photovoltaic solar array in 2008.<sup>229</sup> The water to supply the project rested on the ability of the Tribe to successfully invoke its federally reserved water rights under the *Winters* doctrine.<sup>230</sup> A tribe attempting to claim federal reserve water rights for renewable energy development must

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<sup>220</sup> Associated Press, *Navajo Solar Project Now Producing Electricity*, AZCENTRAL, (Aug. 29, 2017, 1:53 PM), <https://www.azcentral.com/story/money/business/energy/2017/08/29/navajo-nations-first-solar-project-now-producing-electricity-13-000-homes/613443001/>.

<sup>221</sup> *Id.*

<sup>222</sup> National Renewable Energy Laboratory, *U.S. Annual Solar GHI*, (May 4, 2020), <https://www.nrel.gov/gis/solar.html>.

<sup>223</sup> *Id.*

<sup>224</sup> *Id.*

<sup>225</sup> *Id.*

<sup>226</sup> *Id.*

<sup>227</sup> *Id.*

<sup>228</sup> Central Arizona Project, *CAP Considers Best Ways to Meet Its Energy Needs*, CAP BLOG (Apr. 11, 2018), <http://www.cap-az.com/public/blog/783-cap-considers-best-ways-to-meet-its-energy-needs>.

<sup>229</sup> Jenny Small, *Renewable Energy on Tribal Land & Water Resources: Jemez Pueblo*, 17 U. DENV. WATER L. REV. 99, 100, 103 (2013).

<sup>230</sup> *Id.* at 109–12.

be able to show that their particular Native American reservation's federal purpose was broader than just agriculture and domestic uses, depending on the standard used in their state.<sup>231</sup> Two reasons the Jemez Pueblo project floundered were the interpretation of permissible uses of water on the reservation and ongoing litigation over scarce water sources in the region, which began in 1983 and only proceeded towards discovery in 2012.<sup>232</sup> In the American Southwest, where solar energy potential is highest, the greatest limiting factor in development is water scarcity. The entire Colorado River basin is already overallocated, so development of new renewable energy resources on tribal lands without secured water sources will displace current users and prompt legal battles over the water.

The development of a solar facility at NGS enjoys both the benefit of not displacing water users and the generous "homeland" standard Arizona uses when evaluating Indian water claims. Unlike the Jemez Pueblo, and other reservations seeking to develop renewable energy, the Navajo also have another secured source of water. Even if the Navajo Nation becomes entangled in litigation or settlement efforts for the NGS water, the Tribe only uses eighty of its currently permitted 950 acre-feet rights from Lake Powell.<sup>233</sup> As part of the replacement lease that secured NGS operation from 2017 to 2019, the Navajo will obtain the Lake Powell intake and other water infrastructure from the NGS, valued at \$41 million.<sup>234</sup> This assured access to a source of water, whether from existing water rights or new ones from the plant, will make a solar array on NGS lands possible.

A future solar project at the NGS site of roughly 163 mW capacity, requiring 2.75 million gallons of water (less than 8.5 acre-feet) is possible, using technology and land use principles already in place at the Kayenta Solar Facility.<sup>235</sup> Photovoltaic (passive) solar projects use less water than conventional energy projects, solar concentrators, and geothermal projects, and would leave a large amount of water previously used to cool

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<sup>231</sup> *Id.* at 111–12.

<sup>232</sup> *Id.* at 119.

<sup>233</sup> NAVAJO NATION ENVTL. PROT. AGENCY, NAVAJO GENERATING STATION CLOSURE PUBLIC INFORMATION SHEET 1 (2015), [https://www.navajoepa.org/main/index.php?Option=com\\_content&view=article&id=103&Itemid=185](https://www.navajoepa.org/main/index.php?Option=com_content&view=article&id=103&Itemid=185).

<sup>234</sup> *Id.*; Ryan Randazzo, *Navajo Nation Approves New Coal Plant Lease*, AZCENTRAL (Jun. 26, 2017), <https://www.azcentral.com/story/money/business/energy/2017/06/27/navajo-nation-coal-plant-lease-navajo-generating-station/429864001/> (as valued by Salt River Project).

<sup>235</sup> Assuming similar land-use and technology used at the Kayenta Solar site. Kayenta: 27.3 mW on 300 acres; NGS site is roughly 1,786 acres, allowing 163 mW x 16,689 gallons.



the generators of the NGS for other purposes.<sup>236</sup> It is highly unlikely that a renewable energy project will completely replace the jobs or revenue of the NGS. However, the infrastructure left by the coal operations presents an excellent opportunity for tribal and private investors to replace carbon-heavy generation with clean solar energy while providing jobs and revenue for the tribes.

### *B. Navajo Municipal Needs*

If the Navajo Nation were a state, it would be the poorest in the nation with the highest rates of poverty and unemployment.<sup>237</sup> Many Navajo Nation members do not have access to running water in their homes and entire communities can be served by a single well situated miles away and only accessible over rough roads.<sup>238</sup> Tribal members may commute and haul water several times each week or several times each day, depending on their household size and if they are supporting a ranching operation.<sup>239</sup> Those interested in obtaining water services are faced with a long backlog of projects from the water service provider, up to fifteen years, and installation costs of \$12,000 that many cannot afford.<sup>240</sup> One nonprofit is working to fit homes with large solar storage and pump systems, but a major gap in service remains.<sup>241</sup>

To the south, the City of Phoenix receives forty percent of its water supplies from the Central Arizona Project, delivered for years by electricity from the NGS.<sup>242</sup> In the city's most prosperous areas, like Paradise Valley, individual household water use reached as high as 1.8

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<sup>236</sup> Jenny Small, *Renewable Energy on Tribal Land & Water Resources: Jemez Pueblo*, 17 U. DENV. WATER L. REV. 99, 103 (2013).

<sup>237</sup> The Arizona Republic, *Why It's Hard to Build Homes on Navajo Nation*, AZCENTRAL (Dec. 14, 2016, 10:39 PM), <https://www.azcentral.com/story/news/local/arizona-investigations/2016/12/14/why-its-difficult-build-homes-navajo-reservation/79541556/>.

<sup>238</sup> *Water Hole: No Running Water on Navajo Nation Reservation*, INDIAN COUNTRY TODAY (Jun. 6, 2017), <https://newsmaven.io/indiancountrytoday/archive/water-hole-no-running-water-on-navajo-nation-reservation-JF3R11tCVkeLkYHSz2BxMQ>.

<sup>239</sup> *Id.*

<sup>240</sup> Fred de Sam Lazaro, *How Off-The-Grid Navajo Residents are Getting Running Water*, PBS (June 20, 2018, 6:20 PM EST), <https://www.pbs.org/newshour/show/how-off-the-grid-navajo-residents-are-getting-running-water>.

<sup>241</sup> *Id.*

<sup>242</sup> See Jim Robbins, *In Era of Drought, Phoenix Prepares for a Future Without Colorado River Water*, YALE ENVIRONMENT 360 (Feb. 7, 2019), <https://e360.yale.edu/features/how-phoenix-is-preparing-for-a-future-without-colorado-river-water>.

acre-feet in 2015.<sup>243</sup> Seventy percent of that water is typically used outside, meaning that each of these households is applying 410,760 gallons of water each year to lawns, gardens, washing cars, and swimming pools.<sup>244</sup> NGS has made this kind of use possible across central Arizona while many Navajo live their lives using fifty-gallon drums of water hauled over rough terrain. Transferring the NGS water to the Navajo Nation and providing infrastructure funding could reduce the number of roughly 98,000 Americans without water service on the reservation.<sup>245</sup> This possibility alone should be enough to justify the transfer and begin the process of undoing the settler-colonialism perpetrated against the Navajo.

## CONCLUSION

Navajo Generating Station's shuttering closed another chapter of development on the cities, water, and industries of the Southwest. It also represents the decline of coal-fired electricity production which precipitated regional growth and provided a source of jobs and revenues for the Navajo Nation. Distributing the NGS's water allocation will involve a difficult process, but it is one which has a simple solution. The history of the plant's development, the Law of the River under the Upper Basin Compact, and equity each indicate that the Navajo should receive at least a share of this water for use on the Navajo Nation. The 34,100 acre-feet of water will not be a panacea to the many obstacles faced by Upper Basin Navajo. Yet, it can be a start to repay the people who allowed the cities of Tucson and Phoenix to flourish in the desert.

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<sup>243</sup> See Caitlin McGlade, *Parched: Maps Explain Precious Arizona Resource*, AZCENTRAL (Apr. 6, 2015, 11:24 AM MT), <https://www.azcentral.com/story/news/arizona/investigations/2015/03/02/parched-water-precious-arizona-maps-project/22197363/>.

<sup>244</sup> See *id.*

<sup>245</sup> The Indian Health Service reports the user population of the Navajo Area as 244,209. Total Navajo enrollment is over 300,000 but not every enrolled member is on the reservation. An estimated 98,000 households are without water, which means forty percent of estimated households without service. *Navajo Area*, INDIAN HEALTH SERVICE, <https://www.ihs.gov/navajo/> (last visited Mar. 10, 2020).

## EPILOGUE

### NAVAJO GENERATING STATION: AN OPPORTUNITY FOR RENEWABLE ENERGY PROJECT FINANCE

#### I. BRIDGING THE GAP

While the water issues at NGS could take a decade or more to resolve, changes in the energy regulation landscape make the site favorable for renewable energy. The NGS and Kayenta Mine provided hundreds of well-paying jobs in one of the most economically depressed regions of the country.<sup>246</sup> The closures threaten to further exacerbate wealth disparities between the tribes and surrounding communities, and have stoked economic fears among the tribal community members. As dire as the impacts of closure could be, the infrastructure left from the NGS provides a prime opportunity for renewable energy development on tribal lands.

This epilogue will examine the NGS and Kayenta Mine closure through the lens of renewable energy project finance. The goal is to identify the key opportunities and challenges to the Navajo and Hopi Tribes in replacing the income, jobs, and power generation from the NGS with wind or solar installations. The transmission capacity left by the NGS, the availability of NGS water for new generation projects, the success of the Navajo Nation in constructing a utility-scale solar project, and regulatory changes to energy development on tribal lands contribute to a regulatory environment capable of sustaining clean energy development on the reservation. However, the interaction between federal bureaucracy, tribal sovereignty, and state regulation presents significant hurdles to possible project developers, including the tribes themselves. Each step of the project development process will be analyzed below through the development process outlined by Professor Mark Safty<sup>247</sup> to demonstrate the viability of private or tribal investment. While most considerations will

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<sup>246</sup> Associated Press, *Navajo Nation Cities Rank High in Native American Poverty Rate*, ARIZ. DAILY SUN (Feb. 25, 2013), [http://azdailysun.com/news/local/navajo-nation-cities-rank-high-in-native-american-poverty-rate/article\\_85c9863a-7f64-11e2-b35c-001a4bcf887a.html](http://azdailysun.com/news/local/navajo-nation-cities-rank-high-in-native-american-poverty-rate/article_85c9863a-7f64-11e2-b35c-001a4bcf887a.html).

<sup>247</sup> Mark Safty is an expert in renewable energy project finance, which he practiced for 25 years as a partner at Holland & Hart, LLP. He was appointed the Wirth Chair in Sustainable Development at the University of Colorado in 2013, and is an adjunct professor at the University of Colorado Law School and at the University of Denver's Sturm College of Law. He teaches courses on renewable energy development, regulation, and finance. The project development framework presented comes from his Renewable Energy Project Development and Finance course.

equally apply to the Kayenta Mine, the focus of this analysis will be on the NGS site.

### *A. Navajo Culture and Energy Development*

Any new power-generating facility on former NGS or Kayenta Mine lands will need permitting approval from the Navajo Nation prior to construction and operation. It is worth examining the ways in which cultural and religious attitudes may make these communities more receptive to renewable energy generation than off-reservation communities. While the control of energy resources for the benefit of the Tribe has become an important expression of self-determination by Native Americans,<sup>248</sup> their governments have faced a difficult choice between resource exploitation and their cultural values.<sup>249</sup> Some Navajo viewed the decision to develop projects such as the Kayenta Mine and NGS as the tribal government valuing money more than human and environmental health.<sup>250</sup> Renewable energy development has the potential to meet the energy and fiscal needs of the tribes while complying with the “duty” that the present generation preserve natural resources for future generations.<sup>251</sup> This sense of duty strongly influences the cultural view of many Navajo, and forms the basis for tribal environmental and energy regulation.<sup>252</sup> The possible positive reception by the Nation and its members to new power production, which meets with the government’s interest in providing jobs and income while not conflicting with widely held cultural beliefs, should be considered by independent project finance companies.

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<sup>248</sup> Jonathan Thompson, *Practical Sovereignty: Southern Ute, Inc.*, THE DENVER POST, Sept. 9, 2010, <https://www.denverpost.com/2010/09/09/practical-sovereignty-southern-ute-inc/> (Southern Ute’s strategy of mineral development and investment makes it one of the richest and autonomous tribe).

<sup>249</sup> Lan Necifer et al., *Energy Development and Native Americans: Values and Beliefs About Energy From the Navajo Nation*, 7 ENERGY RES. & SOC. SCI. 1, 2 (May 2015), <https://reader.elsevier.com/reader/sd/pii/S2214629615000274?token=CEC37AA4FFBCD44903DA72E0CFD9708283C4E39FD3E3A30928E81C9E35C4E33B7C15A0050F851BC0D0B8B96EA8E6C451>.

<sup>250</sup> *Id.* at 6–7.

<sup>251</sup> *Id.* at 6.

<sup>252</sup> Environment, *Energy and Economic Alternatives to the Desert Rock Energy Project*, 3-5, GRAND CANYON TRUST (Jan. 2008), [https://www.grandcanyontrust.org/sites/default/files/pl\\_desertRockAlternatives012308.pdf](https://www.grandcanyontrust.org/sites/default/files/pl_desertRockAlternatives012308.pdf).

## II. ELECTRICITY REGULATION OVERVIEW

As the first country to create electric utilities, the United States developed its system of electricity regulation in an ad hoc manner that has responded to changes in technology and industry since the days of Thomas Edison. Professor Safty has characterized our regulatory structure as antiquated and illogical, positing that the rest of the world asks, “Why would you do it that way?”<sup>253</sup> The history of electricity regulation in the United States represents a balancing of the competing interests of consumers and power providers in a naturally monopolistic service. The complicated interaction between local, state, and federal regulators is further confounded by a wide range of additional bureaucracy and laws when tribal lands are involved. A brief overview of the varying jurisdictions will be useful in demonstrating the difficulty of establishing any new project, bringing the advantages of future renewable energy projects on the NGS site into relief.

### A. State Jurisdiction

Each state has some form of a Public Utility Commission (“PUC”) which regulates the production, distribution (retail sales), and siting of electric facilities within the state.<sup>254</sup> The activities of a PUC generally consist of four major activities:

- granting certificates of convenience and necessity, permitting utilities to operate and often giving powers of eminent domain;
- providing utilities a monopoly franchise in an exclusive geographic area to operate;
- requiring the utilities to provide a level of service to everyone in the geographic area; and

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<sup>253</sup> Mark Safty, Adjunct Faculty, Univ. of Colo. Law, *Fundamentals of Renewable Energy Project Finance: Due Diligence, Renewable Energy Project Finance and Development* (Sep. 25, 2017) (lecture) (notes and presentation on file with journal).

<sup>254</sup> In the energy regulatory context, production and generation refer to the processes of generating electricity, whether conventional or renewable. Transmission is the “transportation” of electricity from generation facilities to retail markets. Transmission infrastructure consists of high-voltage lines, often spanning large distances. Electric power from producers, sent over transmission lines, is then sold at wholesale rates to distributors. “Distribution” refers to the network of substations and lower-voltage lines that supply end-users, sometimes operated by a municipal utility. The distributor then charges consumers retail rates. See *Glossary*, THE ENERGY INFORMATION ADMINISTRATION, <https://www.eia.gov/tools/glossary/?id=electricity> (last visited May 4, 2020).

- where there is no market rate, regulating retail prices based on the cost to supply power with a guaranteed rate of return.<sup>255</sup>

Siting of generation, transmission, and distribution facilities is jointly considered by the PUC, other state agencies, and local governments. Once a utility has received the permits required by town and county authorities for its project, as well as any required by other state agencies, such as an environmental department, it may submit to the PUC for authorization.<sup>256</sup>

The PUC oversees a wide variety of electricity-sector actors. The private sector organizations subject to regulation include: vertically integrated utilities, generation-only companies, power brokers, transmission-only companies, and power distributors. The public sector includes municipal utilities, state agencies, irrigation districts, federal power marketers and producers, rural cooperatives, and other special-purpose power districts.<sup>257</sup> In competitive power markets, the cost of electricity to customers is determined by auctioning generation capacity to distributing power companies, or through power purchase agreements. Where there is not a competitive market for retail electricity, the PUC will determine the cost of service and include a guaranteed level of profit for the utility.<sup>258</sup> Pricing considerations, requirements for generation portfolios, and the environmental and health considerations for facility siting vary from state to state.

A new facility on the NGS or Kayenta Mine sites would be subject to oversight by the Arizona Corporation Commission. A project company could take advantage of the extensive infrastructure at these sites to significantly reduce the time and transaction costs associated with completely new project development at all levels.

### *B. Federal Jurisdiction*

Federal jurisdiction over electricity is established by the Federal Power Act (“FPA”)<sup>259</sup>, which gives the Federal Energy Regulatory Commission (“FERC”) the power to regulate all wholesale energy sales in interstate commerce. FERC ensures that rates for wholesale power are just, reasonable, and not discriminatory or preferential.<sup>260</sup> Even if a utility has

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<sup>255</sup> Earle H O’Donnel & Caileen N Gamache, *United States, in GETTING THE DEAL THROUGH – ELECTRICITY REGULATION 2013* at 192–93 (2013), <https://www.jdsupra.com/legalnews/getting-the-deal-through-electricity-r-15741/>.

<sup>256</sup> *Id.*

<sup>257</sup> *Id.* at 192.

<sup>258</sup> *Id.*

<sup>259</sup> 16 U.S.C. § 824 (2018).

<sup>260</sup> O’Donnel & Caileen, *supra* note 255.

no out-of-state infrastructure, if it has an interconnection with another utility connected to another state, then FERC has authority.<sup>261</sup> This policy is based on the fungible nature of electricity. Once a line is interconnected all the energy in the system becomes comingled, so it is impossible to know that some of the power has not moved in interstate commerce. Electricity regulation has been steadily moving from vertically integrated power companies toward a more open market. Developments in federal electricity regulation since the 1990s have been critical to the development of independent renewable energy producers.

Under the FPA and the Energy Policy Act of 1992,<sup>262</sup> FERC issues orders and regulations to open electricity markets to competitive forces. These have included:

- the functional unbundling of transmission service and sales in the wholesale market;<sup>263</sup>
- the requirement to file open-access, nondiscriminatory tariffs to prevent companies from self-dealing;<sup>264</sup>
- the requirement to transmit or “wheel” other companies’ power over one’s own transmission lines;<sup>265</sup> and
- ordering utilities to post on an electric bulletin board system the available transmission capacity where reservations for wheeling can be made.<sup>266</sup>

Open transmission on a nondiscriminatory basis was needed to create a more robust, competitive market in wholesale power. These changes allowed independent power generators, who previously had no secure way to transmit their power to consumers, to provide energy to the grid.

In further restructuring of the electric market, FERC adopted an order<sup>267</sup> to encourage the formation of Regional Transmission Organizations (“RTO”). RTOs are independent from market participants and operate the transmission infrastructure of its members. RTOs are responsible for designing and administering tariffs, managing congestion on the system, monitoring the market, planning for expansion, and

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<sup>261</sup> FPC v. Florida Power & Light Co., 404 U.S. 453 (1972).

<sup>262</sup> 16 U.S.C. § 2601 (2018).

<sup>263</sup> See *New York v. Federal Energy Regulatory Commission*, 535 U.S. 1 at 10–16 (2002) (discussing the legal and regulatory history of Order No. 888 concerning functional bundling and open access tariffs).

<sup>264</sup> See *id.*

<sup>265</sup> 16 U.S.C. § 824(j).

<sup>266</sup> See 18 C.F.R. § 37 (2018).

<sup>267</sup> *Id.* §§ 35–34.

managing interregional coordination with other RTOs.<sup>268</sup> Ten RTOs currently operate in the United States and Canada, serving two-thirds of the population of the United States and half of the Canadian population.<sup>269</sup>

Federal restructuring of the wholesale market has allowed greater market participation in the electric sector. Open access transmission and standardized tariffs have made independent renewable energy projects possible by enabling the transfer of clean power generation to wholesale markets, and ultimately to consumers. Any new project will take advantage of these changes to bring renewable energy onto the market without utility-scale capital.

### *C. Requirements Particular to Indian Lands*

Unlike fossil fuel development, a renewable energy project at the NGS site would not directly implicate mineral development on the Navajo Nation. This greatly simplifies the statutory framework generally applicable to energy development on Indian lands by circumscribing the Mineral Leasing Act,<sup>270</sup> the Indian Mineral Leasing Act of 1938,<sup>271</sup> and the Indian Mineral Development Act of 1982,<sup>272</sup> as well as up to eighteen Bureaus and offices within the Department of the Interior, each with complementary and overlapping responsibilities for mineral development on Indian lands.<sup>273</sup> Instead, projects not directly undertaken by tribes are subject to the more limited Indian Long-Term Leasing Act<sup>274</sup> in order to obtain land-use permits and surface leases of tribal land. The Indian Long-Term Leasing Act expanded the permitted uses for Native Americans to lease their lands to include commercial and business purposes, while prior law only permitted limited mining leases.<sup>275</sup> Long-term leases proposed are then subject to the Secretary of the Interior's approval.<sup>276</sup> In approving

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<sup>268</sup> *Id.* §§ 35–34.

<sup>269</sup> ISO/RTO COUNCIL, 2009 STATE OF THE MARKETS REPORT 3 (2009), [https://hepg.hks.harvard.edu/files/hepg/files/2009\\_irc\\_state\\_of\\_markets\\_report.pdf](https://hepg.hks.harvard.edu/files/hepg/files/2009_irc_state_of_markets_report.pdf).

<sup>270</sup> 30 U.S.C. § 181 (2018).

<sup>271</sup> 25 U.S.C. § 396 (2018).

<sup>272</sup> 25 U.S.C. § 2101 (2018).

<sup>273</sup> Shawn Regan, *Unlocking the Wealth of Indian Nations: Overcoming Obstacles to Tribal Energy Development*, PERC POL'Y PERSP. at 13-14, Feb. 2014, (includes graphic representation and discussion of offices within the Bureau of Indian Affairs responsible for mineral development).

<sup>274</sup> 25 U.S.C. § 415 (2018).

<sup>275</sup> Thomas H. Shipps & Lynn H. Slade, *Tribal Energy and Mineral Resource Development*, in SPECIAL INSTITUTE ON INDIAN LAW AND NATURAL RESOURCES: THE BASICS AND BEYOND 7-7 to 7-10 (2017).

<sup>276</sup> *Id.*



leases, the Secretary is required to determine what is in the best interest of the Tribe, a direct result of the trust responsibilities imposed by the Supreme Court decision in *M'Intosh*.<sup>277</sup> The General-Right-of-Way Act<sup>278</sup> permits the Secretary to grant rights-of-way for all purposes over Indian trust lands, subject to consent of proper tribal officials. The Act was an attempt by Congress, in 1948, to standardize rights-of-way across several laws then in effect, as well as individual treaty terms such as Article IX of the Navajo treaty above.<sup>279</sup>

Both the Long-Term Leasing Act and General-Right-of-Way Act are in force for some aspects of energy development on tribal lands, but there has been a large shift towards granting tribes more autonomy in general development of their lands.<sup>280</sup> The Navajo Nation Trust Leasing Act of 2000 was the first in a string of enactments conditionally authorizing tribes to enter into long-term leases or contracts without secretarial approval.<sup>281</sup> This legislative and regulatory development culminated in July 2012 with the passage of the Helping Expedite and Advance Tribal Homeownership Act (“HEARTH”), which was applicable to all tribes.<sup>282</sup> HEARTH and its preceding Navajo-specific legislation reach far beyond homeownership. These acts allow those tribes with tribal leasing provisions preapproved by the Secretary of the Interior to lease tribal land without secretarial approval, which can reduce project approval time by six months to two years.<sup>283</sup> In order to take advantage of the HEARTH Act’s streamlined provision, tribes must incorporate environmental review processes consistent with federal law, including an ability for the public to comment on proposed leases.<sup>284</sup> In return, the federal government disclaims losses sustained from leases approved by tribal processes, barring tribes from bringing suit against the government for failing in its trust responsibilities.<sup>285</sup>

While some commentators are concerned by the threats to tribal sovereignty and the possible abrogation of federal trust responsibilities,<sup>286</sup>

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<sup>277</sup> Elizabeth Ann Kronk Warner, *Tribal Energy Development Under the HEARTH Act: An Independently Rational, but Collectively Deficient, Option*, 55 ARIZ. L. REV. 1031, 1045-46 (2013).

<sup>278</sup> 25 U.S.C. §§ 323–328 (2018).

<sup>279</sup> Shipps & Slade, *supra* note 275, at 7-10.

<sup>280</sup> *Id.* at 7-11.

<sup>281</sup> *Id.* at 7-14.

<sup>282</sup> Warner, *supra* note 277, at 1035 (the Act is a voluntary mechanism, those tribes preferring to maintain the present BIA approval system are allowed to do so).

<sup>283</sup> *Id.* at 1046, 1048.

<sup>284</sup> *Id.* at 1055.

<sup>285</sup> *Id.* at 1059.

<sup>286</sup> *See id.*

legislation like the HEARTH Act is a positive development for those looking to build renewable energy projects on tribal lands. Tribal autonomy in leasing, and the lack of mineral involvement in renewable projects, dramatically reduces the forty-nine bureaucratic steps necessary to develop traditional energy projects on tribal lands.<sup>287</sup> These developments, when coupled with the continuing maturation of the renewable energy industry, have positioned the Navajo and Hopi Tribes in a much better position than they were when the Mohave Generating Station closed in 2006.

#### *D. Navajo Code*

Navajo law, regulation, and policy are aligned with fostering renewable energy and provide a robust framework for considering applications to develop on tribal land.

The Navajo Nation Environmental Protection Agency (“NNEPA”) has a comprehensive set of laws and regulations covering solid waste, clean water, Comprehensive Environmental Response, Compensation, and Liability Act, air pollution, and a general Environmental Policy Act.<sup>288</sup> The Environmental Policy Act establishes the Nation’s policy to “promote harmony and balance between the natural environment and people of the Navajo Nation.”<sup>289</sup> The Navajo Nation is then required to employ its governmental authority to promote to the fullest practicable extent “recycling and the use of renewable resources to ensure that the level of use of renewable resources does not exceed that which is sustainable... to attain the widest range of beneficial uses of the environment without degradation.”<sup>290</sup>

A company wishing to use Navajo land for a project must submit an application to the General Land Development Department with relevant geospatial information and purpose.<sup>291</sup> While the Land Department considers a possible lease, the NNEPA considers permits required under applicable environmental laws.<sup>292</sup> In order to ease the burden of

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<sup>287</sup> *Id.* at 1041.

<sup>288</sup> *Laws and Regulations*, NAVAJO NATION ENVTL. PROTECTION AGENCY, [https://www.navajoepa.org/main/index.php?option=com\\_content&view=article&id=51&Itemid=140](https://www.navajoepa.org/main/index.php?option=com_content&view=article&id=51&Itemid=140) (last visited Apr. 24, 2018).

<sup>289</sup> Navajo Nation Environmental Policy Act, 4 N.N.C. § 901 (2014).

<sup>290</sup> Navajo Nation Environmental Policy Act, 4 N.N.C. § 903 (2014).

<sup>291</sup> *General Land Development Department Program Information*, NAVAJO LAND DEPT., <http://dinehbikeyah.org/Home/gldd> (last visited Feb. 10, 2020).

<sup>292</sup> Uniform Regulations for Permit Review, Administrative Enforcement Orders, Hearings, and Rulemakings under Navajo Nation Environmental Acts § 101.

compliance and increase the speed of decisions, projects requiring more than one permit are able to submit consolidated permit applications.<sup>293</sup> The Director of the NNEPA will then decide whether or not to prepare a draft permit and initiate a notice-and-comment period, with similar provisions to the Administrative Procedure Act.<sup>294</sup> The comparative robustness of Navajo law, regulation, and staff for processing applications make it a preferable partner for project development.

Beyond land use, companies looking to develop on Navajo land must comply with the Navajo Preference in Employment Act. It was adopted by the Navajo Nation Council in 1985.<sup>295</sup> The Act requires employers doing business on Navajo lands to develop job qualifications for any given job, and then give preference to qualified Navajo, qualified Navajo spouses, and then any other qualified applicants.<sup>296</sup> In order to further the aims of the Act, employers complete a written Navajo affirmative action plan with the Office of Navajo Labor Relations.<sup>297</sup> Even if a private entity decides to redevelop the NGS or Kayenta site, the company would benefit from recruiting and training local tribal members. There is a pool of skilled workers from the construction and operation of the Kayenta Solar Facility, as well as former NGS workers and managers who did not accept jobs elsewhere when the plant closed.

### III. PROJECT DEVELOPMENT THROUGH THE SAFTY MODEL: OVERVIEW

Professor Safty's model is based on securing and integrating eleven primary documents and contracts necessary to secure a financing agreement for a renewable energy project.<sup>298</sup> After a brief overview of project finance, I will explain the eleven-document framework and identify which will benefit most from the existing NGS infrastructure and arrangements. While the framework may appear linear, many of the contracts are formed concurrently in order to reduce costs and bring the project to fruition as quickly as possible.

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<sup>293</sup> *Id.* § 203.

<sup>294</sup> *Id.* §§ 207–213.

<sup>295</sup> Brian Nichols, *Tribal Employment Preference and Employee Protection Laws*, in NATURAL RESOURCES DEVELOPMENT ON INDIAN LANDS 13A-5 (2011).

<sup>296</sup> Navajo Nation Preference in Employment Act, 4 N.N.C. §§ 601–614 (2010).

<sup>297</sup> Nichols, *supra* note 295, at 13A-6.

<sup>298</sup> Mark Safty, Adjunct Faculty, Univ. of Colo. Law, Overview of Project Development and Finance, Renewable Energy Project Finance and Development (Oct. 2, 2017) (lecture) (notes and presentation on file with journal).

### *A. What is Project Finance?*

One practitioner opined that project finance is difficult to describe, but easy to spot.<sup>299</sup> Project finance is a highly structured financing technique for funding the cost of a project, conducted by a special-purpose project company (typically an LLC).<sup>300</sup> These companies are thinly capitalized and their primary assets consist of the body of contracts and licenses negotiated by the company in preparation of the project.<sup>301</sup> Successful companies will: thoroughly define the parties, relationships, and responsibilities of the project actors; allocate risk appropriately; and establish a complete and fully integrated legal and contractual infrastructure that can provide a basis for financing.<sup>302</sup> Once the legal and contractual infrastructure is complete, the company can approach banks to finance the project. Unlike corporate finance, the bank will not look at the company as a whole but rather at the single flow of revenue the proposed project will provide as the basis for secured lending.<sup>303</sup> The bank will, among other things, consider five primary factors when assessing a proposal:

- whether the facility can function profitably as an independent, stand-alone business;
- the creditworthiness of contract participants;
- whether the technology is proven on a commercial scale;
- if there is a predictable legal and regulatory framework to uphold contractual agreements; and
- the projected cash flows' ability to service the debt.<sup>304</sup>

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<sup>299</sup> Phillip Fletcher & Cathy Marsh, *The Art of Getting a Project Finance Deal Through*, MILBANK, TWEED, HADLEY & MCCLOY LLP 3 (2014), <https://www.milbank.com/images/content/1/3/13183/project-finance-overview.pdf>.

<sup>300</sup> Mark Safty, Adjunct Faculty, Univ. of Colo. Law, Overview of Project Development and Finance (Oct. 9, 2017) (lecture) (notes and presentation on file with journal).

<sup>301</sup> Phillip Fletcher & Cathy Marsh, *The Art of Getting a Project Finance Deal Through*, MILBANK, TWEED, HADLEY & MCCLOY LLP 3 (2014), <https://www.milbank.com/images/content/1/3/13183/project-finance-overview.pdf>.

<sup>302</sup> Mark Safty, Adjunct Faculty, Univ. of Colo. Law, Fundamentals of project Finance, Renewable Energy Project Finance and Development (Sep. 25, 2017) (lecture) (notes and presentation on file with journal).

<sup>303</sup> *Id.*

<sup>304</sup> *Id.*; Evelyn Lim & James Berger *Guide to Renewable Energy Project Contracts*, in RENEWABLE ELECTRIC ENERGY LAW, DEVELOPMENT, AND INVESTMENT 12-1, (Nov. 2013).

Because the solvency of a project is premised on the strength of the contracts and parties involved, it makes sense to view redevelopment of the NGS and Kayenta Mine through the lens of Professor Safty's document framework.

### *B. Eleven-Document Framework*

Prior to seeking financing, a project company must have the entire framework of the proposed facility settled for the long-term. Before beginning the process, the project owners will need to form a contract between themselves and the project company in a JOINT VENTURE AGREEMENT. This agreement will govern the management structure and decision making of the company, capital contributions, defaults, remedies, and transfer restrictions.<sup>305</sup> Forming a non-recourse entity for financing has several advantages for private and tribal companies looking to finance on reservations, especially after the HEARTH Act and other similar legislation limited federal liability for projects on Indian land.

Once formed, the project company will need to assess production capacity of a given area and secure the necessary SITE CONTROL AGREEMENTS to do preliminary testing, construction, and operation.<sup>306</sup> The leases and easements must be sufficient for continual operation of the site and address any restrictions by the landowner, actions on default, water access, and any decommissioning provisions. Once site access is secured, the company can begin assembling the necessary PERMITS for the project. Permitting can implicate tribal, local, state, and federal requirements covered in the electricity regulation overview section.<sup>307</sup> Depending on the breadth of the project, transmission site permitting can be especially difficult because each local authority must approve the location of the lines. A lawyer can spend their entire career permitting the transmission for a single project.<sup>308</sup> Current NGS transmission capacity is one of the greatest arguments for transitioning the site to a renewable energy facility.

A POWER PURCHASE AGREEMENT ("PPA") is necessary to secure the revenue stream to service project debt and produce revenue for the project company.<sup>309</sup> Any proposed project replacing the NGS will need to find a

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<sup>305</sup> Mark Safty, Adjunct Faculty, Univ. of Colo. Law, Overview of Project Development and Finance (Oct. 9, 2017) (lecture) (notes and presentation on file with journal).

<sup>306</sup> *Id.*

<sup>307</sup> *Id.*

<sup>308</sup> *Id.*

<sup>309</sup> *Id.*

utility, central procurement agency, government body, or private sector customer to purchase power over a long-term period in a flexible contract that accounts for the intermittency of renewable power and changes in economic conditions of the electric sector.<sup>310</sup> In order to deliver electricity to the power-purchaser, any project will have to be connected to the grid via an INTERCONNECTION AGREEMENT with the RTO or utility.<sup>311</sup> When a project is starting from scratch and requires new transmission facilities, a project company must procure a feasibility study, system impact study, and interconnection facilities study.<sup>312</sup> As these studies evaluate the technical requirements of bringing new power onto the grid, a renewable project collocated with the NGS transmission facilities requires far fewer technical assessments. Successful PPA and interconnection agreements will be heavily dependent on the production capacity, size, and economics of a proposed site project and market conditions at the time of negotiation and completion.

The project company will need to secure CONSTRUCTION CONTRACTS, EQUIPMENT SUPPLY AGREEMENTS, and an OPERATION AND MANAGEMENT AGREEMENT to build and operate the facility. While it is common for wind projects to purchase equipment directly from vendors, solar projects often enter into a consolidated contract where the construction contractor is responsible for procuring equipment.<sup>313</sup> This is because panel manufacturers are often vertically integrated and able to offer a “shrink-wrapped” or “turn-key” project, where the company provides for the engineering, supplies, and construction of a facility.<sup>314</sup> Key issues in these contracts include a precise description of work, completion milestones, defaults and remedies, and testing provisions.<sup>315</sup> Most project companies are designed to finance and build a renewable energy facility, but they often lack the capacity to operate the facility.<sup>316</sup> The company will seek an operator to handle electricity production, maintenance, and repair of the project. Major considerations for the agreement include specifying the duties of the operator, an annual budget and operating plan, warranty claim procedures, employment plans,

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<sup>310</sup> Mark Safty, Adjunct Faculty, Univ. of Colo. Law, Competitive Procurement of Electricity and Introduction to PPAs (Oct. 30, 2017) (lecture) (notes and presentation on file with journal).

<sup>311</sup> Mark Safty, Adjunct Faculty, Univ. of Colo. Law, Overview of Project Development and Finance (Oct. 9, 2017) (lecture) (notes and presentation on file with journal).

<sup>312</sup> *Id.*

<sup>313</sup> Lim & Berger, *supra* note 304, at 12-2.

<sup>314</sup> *Id.*

<sup>315</sup> Safty, *supra* note 300.

<sup>316</sup> *Id.*

limitations on the rights of the operators, and limitation of liability.<sup>317</sup> It is important that any WARRANTIES are properly integrated with the construction, equipment supply, and operation contracts to prevent damage or failure of equipment to fall into coverage gaps.<sup>318</sup>

Finally, the project company will have to manage its AGREEMENTS WITH CONSULTANTS AND ADVISORS who will provide financial modeling, risk analysis, warranty inspection, environmental consultation, or other services implicated by an individual project.<sup>319</sup> These services will be key to complying with permitting requirements, conducting environmental assessments at all levels, and determining if the project will be viable at different sizes and power purchase prices.<sup>320</sup> Once all of these contracts and agreements have been properly integrated, the project company can approach banks in order to successfully reach a financing agreement.

#### IV. ADVANTAGES OF THE NGS SITE FOR PROJECT DEVELOPERS

The NGS site presents several advantages for project-financed development of renewable energy facilities. Existing infrastructure and agreements greatly simplify the process of securing site control agreements, completing the permitting process and the interconnection agreement. The Navajo will benefit from the opportunity to redevelop NGS land, either by forming their own development companies or by partnering with non-tribal companies. Whether tribal or not, a project company will also benefit from the presence of the Kayenta Solar Project on Navajo lands. The Kayenta Project, the first tribally owned utility-scale facility, has proven the viability of such projects on the reservation and will provide a base of experienced labor to comply with tribal employment laws.<sup>321</sup>

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<sup>317</sup> *Id.*

<sup>318</sup> *Id.*

<sup>319</sup> *Id.*

<sup>320</sup> *Id.*

<sup>321</sup> Associated Press, *Navajo Solar Project Now Producing Electricity*, AZCENTRAL.COM, (Aug. 29, 2017, 1:52 PM), <https://www.azcentral.com/story/money/business/energy/2017/08/29/navajo-nations-first-solar-project-now-producing-electricity-13-000-homes/613443001/>.

### *A. Joint Venture Agreement*

The main consideration for non-tribal companies looking to redevelop the NGS or Kayenta mine is the federal waiver of liability under the HEARTH Act. While this could be an obstacle to traditional financing, the limited-recourse nature of project development LLCs makes it unlikely that this provision of the HEARTH Act will dissuade private project developers. If a tribe decides to form an LLC to develop a renewable energy facility, they will have the opportunity to modify the traditional project finance model. Rather than leaving the LLC thinly capitalized, the Tribe could invest some of the ongoing lease payments from the NGS owners into the corporation, with a total possible valuation of \$110 million over thirty-five years.<sup>322</sup> Increased capitalization of the project LLC will reduce the amount of money needed to develop a project, reducing risk to lenders.

### *B. Resource Density, Site Control, and Access*

Arizona has extremely strong solar production potential, with a considerable land mass at the top of the fifty-state resource range of more than 5.75 kWh/m<sup>2</sup>/day.<sup>323</sup> Much of the Navajo and Hopi reservations have resource ranges of 5.25 to 7.5 kWh/m<sup>2</sup>/day.<sup>324</sup> Wind potential is much lower across the reservations at large portions of the reservations sitting at an annual windspeed of 4.0-6 m/s at 80m in height.<sup>325</sup> While higher than significant portions of the southeastern United States, the average speed in the Southwest pales in comparison to the averages exceeding 7.0 m/s on the Great Plains and over 10 m/s in parts of Wyoming.<sup>326</sup> Prospective developers will likely focus on proven passive solar power. The potential for solar development in the area has already been exploited by the Navajo Tribal Utility Authority, which began operating the Kayenta Solar Facility

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<sup>322</sup> Ryan Randazzo, *Navajo Nation Considering Coal Plant Lease*, AZCENTRAL.COM, (May 25, 2017, 1:15 PM), <https://www.azcentral.com/story/money/business/energy/2017/05/25/navajo-nation-seeks-water-power-generating-station-coal-plant-lease/345997001/>.

<sup>323</sup> National Renewable Energy Laboratory, *U.S. Annual Solar GHI*, (May 4, 2020), <https://www.nrel.gov/gis/solar.html>.

<sup>324</sup> *Id.*

<sup>325</sup> Billy J. Roberts, *Wind Resources of the United States*, NREL (May 4, 2020), <https://www.nrel.gov/gis/assets/images/wtk-80m-2017-01.jpg>

<sup>326</sup> *Id.*



in 2017, which is less than 100 miles from Page.<sup>327</sup> The 27.3 megawatt Kayenta facility provides enough electricity for about 13,000 homes.<sup>328</sup>

Depending on the exact terms of any agreement to reclaim the NGS site, the Navajo Nation will control access to the facility site, the electric railway to the Kayenta Mine transfer station, and the lands encompassing the mine.<sup>329</sup> A major advantage to using these lands is that there is only one owner to negotiate with. The area is already developed with the necessary easements and physical infrastructure to allow access from major thoroughfares to a future renewable generating station. There are unlikely to be many restrictions by the Navajo Nation on the terms of testing, constructing, or operating a renewable facility, as these impacts will be quantitatively and qualitatively less intensive than those of a large-scale coal power plant. The Navajo also enjoy the ability to approve their own leases without secretarial approval, and because a renewable project does not involve mineral development, large swaths of federal bureaucracy do not apply. The operations of the NGS also leave assured access to an overlooked requirement in renewable energy development: the very water left by the NGS and the amount of water unused under current Navajo permits.<sup>330</sup>

Extensive production potential, simplified site access and control, as well as a secured source of water make the NGS site an excellent candidate for renewable energy project finance. These factors greatly reduce the amount of due diligence, negotiation, transaction costs, and uncertainty associated with a typical new renewable energy project. Such a project also enjoys a simplified federal framework of lease approval where the Navajo could make an ultimate decision on the NGS site.

### C. Permits

The permitting process for a renewable energy project at either the NGS or Kayenta Mine is greatly simplified by the ability of a new project to use existing infrastructure. A solar array has a much smaller environmental impact than a coal-fired power plant and is unlikely to have significant negative impacts when compared to the previous forty-four

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<sup>327</sup> See *Navajo Solar Project Now Producing Electricity*, *supra* note 321; Kristen Allen, *NTUA, Kayenta solar project chart path to the future*, *NAVAJO TIMES*, (Oct. 3, 2019), <https://navajotimes.com/biz/ntua-kayenta-solar-project-chart-path-to-the-future/>.

<sup>328</sup> *Navajo Solar Project Now Producing Electricity*, *supra* note 321.

<sup>329</sup> Ryan Randazzo, *Navajo Nation considering coal plant lease*, *AZCENTRAL.COM* (May 25, 2017), <https://www.azcentral.com/story/money/business/energy/2017/05/25/navajo-nation-seeks-water-power-generating-station-coal-plant-lease/345997001/>.

<sup>330</sup> See *supra* pp. 327–28 (discussion of the Jemez Pueblo solar project).

years of NGS operation. The level of remediation necessary for solar panels to be installed and operated on these sites is also less extensive and expensive than if the land were to be reclaimed for other uses.<sup>331</sup> Urban areas have had success in remediating brownfield sites to host solar arrays where no other use would be appropriate or further remediation is not cost-effective.<sup>332</sup>

The greatest benefit of the NGS site is the existing transmission capacity. Securing the permits necessary to build transmission capacity to electricity markets can take an inordinate amount of time, and larger transmission projects require a special kind of stamina to succeed. The Chokecherry and Sierra Madre project, a 3,000 megawatt wind project in southwestern Wyoming, has been working since 2005 to permit 730 miles of high-voltage transmission from the production site to Southern California markets.<sup>333</sup> The ready-made availability of 2,250 megawatts on 800 miles of transmission lines left by the NGS is more than any project will be able to use on the sites available and greatly reduces the transaction costs, planning, and uncertainty in building a solar array at the NGS site as opposed to another location without existing infrastructure.<sup>334</sup> As part of the extension lease for the operation from 2017-2019, there is an agreement for at least a portion of the NGS transmission capacity for up to thirty-five years, with access to the lines valued at \$80 million.<sup>335</sup>

The sweep of Navajo environmental protection legislation and regulation is robust enough for the Nation to decide on new permits and leases under HEARTH legislation. This is good news for developers as it greatly reduces the layers of federal bureaucracy and shortens the development timeline. Tribal or private development companies will

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<sup>331</sup> PHILIP WARBURG, *HARNESS THE SUN: AMERICA'S QUEST FOR A SOLAR-POWERED FUTURE* 79–81 (2016).

<sup>332</sup> *Id.*

<sup>333</sup> James Temple, *How to Get Wyoming Wind to California, and Cut 80% of U.S. Carbon Emissions*, SUSTAINABLE ENERGY, MIT TECHNOLOGY REVIEW (Dec. 28, 2017), <https://www.technologyreview.com/s/609766/how-to-get-wyoming-wind-to-california-and-cut-80-of-us-carbon-emissions/>.

<sup>334</sup> Ryan Randazzo, *Plant's power lines could aid solar, wind projects*, AZCENTRAL.COM (Apr. 26, 2017), <https://www.azcentral.com/story/money/business/energy/2017/04/26/navajo-generating-stations-power-lines-could-benefit-solar-and-wind-development-energy-experts-say/100861896/>.

<sup>335</sup> NAVAJO NATION ENVIRONMENTAL PROTECTION AGENCY, NAVAJO GENERATING STATION CLOSURE PUBLIC INFORMATION SHEET 1 (circa. 2015), [http://www.navajonnsn.gov/News%20Releases/OPVP/2017/June/NGS%20Closure%20Public%20Info%20Sheet\\_opt.pdf](http://www.navajonnsn.gov/News%20Releases/OPVP/2017/June/NGS%20Closure%20Public%20Info%20Sheet_opt.pdf); Ryan Randazzo, *Navajo Nation Ok's New Lease for Navajo Station Coal Plant*, AZ CENTRAL.COM (June 26, 2017), <https://www.azcentral.com/story/money/business/energy/2017/06/27/navajo-nation-coal-plant-lease-navajo-generating-station/429864001/> (as valued by Salt River Project).

benefit from the streamlined permit process under Navajo law.<sup>336</sup> If the Tribe chooses to maintain the base NGS permit for a new energy project on the site, the process would be even simpler. Navajo regulations allow permit modification to only reopen those conditions to be modified, and abrogate the need for public comment.<sup>337</sup> The reduced impact of a solar array—vis-à-vis a coal powerplant—and the requirement for the current NGS operators to mitigate the land to an industrial-acceptable level by virtue of the replacement lease make permitting a renewable energy facility on the NGS site a much less daunting task.

#### *D. PPA/Competitive Procurement*

The NGS site does not provide any inherently advantageous conditions for a new renewable project to secure a PPA. It should be noted that the operators of the NGS decided to shutter the plant because of economic conditions on the electricity spot market and natural gas prices.<sup>338</sup> While it may be possible to market power to the present utilities that take power from the NGS, CAP representatives have called future solar purchases into question. Citing the need to power CAP around the clock and an insufficiently balanced portfolio to manage intermittency, CAP officials stated they were unlikely to purchase future solar energy from the site.<sup>339</sup> Ultimately, success will depend on the economics of any particular installation plan, the ability to secure long-term leases, and the ability to leverage applicable tax credits and renewable energy credits to make power from the site competitive on the open market.<sup>340</sup>

#### *E. Interconnection Agreement*

Any possible interconnection agreement will benefit from the existing NGS infrastructure. Feasibility studies generally rely on the ability of the existing grid to handle additional energy, but a renewable energy facility is unlikely to match the current output of the NGS. As such, technical assessments will focus on the intermittency of renewable energy

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<sup>336</sup> Uniform Regulations for Permit Review, Administrative Enforcement Orders, Hearings, and Rulemakings under Navajo Nation Environmental Acts §§204, 207.

<sup>337</sup> *Id.* §§204(c)(2), 207.

<sup>338</sup> Ryan Randazzo, *Officials: Arizona Water Users Better Off Without Navajo Generating Station Coal Plant*, AZCENTRAL.COM (Feb. 16, 2017), <https://www.azcentral.com/story/money/business/energy/2017/02/16/officials-arizona-water-users-better-off-without-navajo-generating-station-coal-plant/98005410/>.

<sup>339</sup> *Id.*

<sup>340</sup> Mark D. Safty, *Part 10: Renewable Power Purchase Agreements*, ROCKY MT. MIN. L. FDN., Nov. 2013.

production and not on the ability of the grid to handle additional load and an entirely new set of infrastructure to bring new power to market.<sup>341</sup> This will greatly reduce technical and construction costs to a project company, as well as transactional costs involved with coordination with other utilities and RTOs.

### *F. Construction Contracts*

During construction of the Kayenta Solar Facility, the Navajo Tribal Utility's contractor hired 200 members to work on the project.<sup>342</sup> These members—as well as the permanently employed operators of the facility and former NGS workers—represent a nascent skilled work force for renewable energy projects on the reservation. Any future project developer at the NGS or Kayenta Mine site will be able to tap into these experienced workers to benefit ongoing construction, while the Tribe benefits from reinforcing these skills, and increasing the pool of skilled labor available for future renewable energy projects.

### *G. Equipment Supply Agreement*

The NGS site does not present any advantages for procuring an equipment supply agreement. However, any project company looking to redevelop the site will have to contend with the Trump administration's announced solar and steel tariffs. These tariffs are set to start at thirty percent after the first 2.5 gigawatts of imported capacity, then to decline by five percent each of the following three years to combat Chinese trade practices.<sup>343</sup> These tariffs are expected to cost 23,000 jobs across the industry this year and may stifle new solar project growth.<sup>344</sup>

However, it does not present a particular impediment to redeveloping the NGS site or Kayenta Mine. Solar projects across the country will be subject to the same tariff and tax-credit structure. However, the other

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<sup>341</sup> Mark Safty, Adjunct Faculty, Univ. of Colo. Law, Overview of Project Development and Finance (Oct. 9, 2017) (lecture) (notes and presentation on file with journal).

<sup>342</sup> Associated Press, *Navajo solar project now producing electricity*, AZCENTRAL.COM (Aug. 29, 2017), <https://www.azcentral.com/story/money/business/energy/2017/08/29/navajo-nations-first-solar-project-now-producing-electricity-13-000-homes/613443001/>.

<sup>343</sup> Umair Irfan, *The Solar Industry is Bracing for Job Losses after Trump's Tariffs*, VOX (Feb. 7, 2018 12:28 PM), <https://www.vox.com/energy-and-environment/2018/1/22/16921244/solar-tariff-white-house-itc-trump>.

<sup>344</sup> *Id.*

advantages inherent to the NGS and Kayenta sites may sufficiently reduce the costs of development to offset or outweigh the tariffs.

### *H. Operation and Management Agreement*

Redevelopment of the NGS site or Kayenta Mine, especially by a tribal entity, can benefit from the presence of the Kayenta Solar Facility. A tribal or non-tribal LLC may seek for the Navajo Tribal Utility Authority to operate a new solar project. The Utility Authority's pool of experienced personnel, familiarity with tribal regulation and laws, and physical proximity to a new project make it an advantageous operator. Contracting with the Utility Authority also makes sense if the project company plans on selling power to the Navajo and Hopi Nations for domestic and commercial use. Positioning the Utility Authority as a project's operator would also ease any transition by which the project LLC might sell the project to the utility.

### *I. Warranties: Consultants and Advisory Agreements*

There are no inherent benefits to the warranty process by redeveloping the NGS and associated sites. Warranties, like consultant and advisory agreements, will be subject to general strictures of project finance. The existence of power-production infrastructure already at the site and the less intensive impacts of a renewable facility may reduce consulting and advisory costs for complying with environmental regulations.

### *J. Financing Agreements*

A project company will have to be extremely diligent in the formation and integration of the contracts and agreements involved in redeveloping the NGS to secure funding. However, the advantages of developing the NGS site outlined in the other ten documents will greatly reduce the transaction costs, amount of work, and uncertainty in the process. Each of these reductions makes it more likely that a facility will be able to function profitably as an independent, stand-alone business. Depending on the extent to which a new project replicates the Kayenta Solar Facility, lending institutions will be able to accurately evaluate the creditworthiness of contract participants, evaluate the ability of the operational concept to perform at a larger commercial scale, and assess the legal and regulatory framework on Navajo lands to uphold the contractual agreements. Favorable conditions left by the NGS coupled with maturation of the renewable energy sector provide an environment wherein projected cash

flows will not only be able to service the necessary debt from development, but to generate a profit for the project company.

## V. RENEWABLE ENERGY, THE MORE IMMEDIATE OPPORTUNITY

In December 2019, the NGS shuttered, likely closing the Kayenta Mine along with it. This closure will have an extremely detrimental economic impact on the native communities that these energy projects support. The power plant and mine employ a combined 700 people, with another 2,300 regional jobs linked to the two sites.<sup>345</sup> NGS lease payments and coal royalties contribute roughly one-fifth of the Navajo budget, and nearly eighty-seven percent of the Hopi's \$14.6 million general budget is generated by coal-related royalties and fees.<sup>346</sup> It is unlikely that a renewable energy project on these sites will completely replace the jobs or revenue of the NGS. However, the infrastructure left by the coal operations presents an excellent opportunity for tribal and private investors to replace carbon-heavy generation with clean solar energy, while providing jobs and revenue for the tribes. The opportunity to circumvent a large portion of federal, state, and tribal regulation should not be lightly disregarded when considering the ability to bring such a project to fruition.

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<sup>345</sup> James Rainey, *Lighting the West, Dividing a Tribe*, NBC NEWS (Dec. 18, 2017), <https://www.nbcnews.com/specials/navajo-coal>.

<sup>346</sup> *Id.*