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# Doctrinal Uncertainty in the Law of Federal Reserved Water Rights: The Potential Impact on Renewable Energy Development

## ABSTRACT

*Persistent, unresolved questions in the law of federal reserved water rights threaten to stymie the groundswell of interest in renewable energy development. Although the U.S. Supreme Court established the reserved rights doctrine more than a century ago, the breadth, scope, and impact of federal reserved rights remain unclear. Whether due to the daunting task of adjudicating the respective rights in stream systems, the trepidation of parties to compel those adjudications forward for fear of an adverse result, or the lure of alternative dispute resolution, scarce new law has developed to define the contours of a federal reserved right. In the meantime, climate change concerns and a shift in political priorities have spurred growing interest in the development of renewable energy resources. Notably, Indian tribes that sit at the center of many water rights disputes happen to be located on lands rich in such solar, geothermal, biomass, and wind resources. In order to capitalize on the potentially favorable market forces driving renewable energy development, as well as federal funding for renewable projects and other incentives, the time is ripe for resolution of decades-old water rights disputes. Absent such resolution, individual tribes—and the nation as a whole—stand to forego important opportunities to help drive the United States toward a low-carbon economy.*

## I. INTRODUCTION

Despite the passage of time, the law of federal reserved water rights has seen little development since the seminal *Winters v. United*

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*States* decision in 1908.<sup>1</sup> Although a handful of subsequent U.S. Supreme Court decisions have since discussed the *Winters* doctrine,<sup>2</sup> many questions regarding the scope of federal reserved rights remain unanswered. A case involving reserved rights has not come before the Supreme Court since 1989,<sup>3</sup> and lower courts have rendered few decisions to resolve claims involving *Winters* rights.<sup>4</sup>

Instead, many of the cases that assert claims to reserved water rights are mired in the procedural hurdles attendant to multiparty litigation, not yet reaching the substantive merits of the claims.<sup>5</sup> Additionally, because few prospects exist for the near-term resolution of large adjudications that involve claims to federal reserved rights, many of the parties have turned to negotiated settlements.<sup>6</sup> Although perhaps beneficial for the settling parties, each negotiated settlement results in fewer federal reserved rights cases reaching judicial resolution.<sup>7</sup> In other words, courts are creating little precedent in the reserved rights arena.

As a result of this predicament, the cloud of uncertainty that has plagued the reserved rights doctrine for many years continues to cast its shadow over hundreds of thousands of acre-feet of water rights claims in the West. Many holders of state water rights remain stuck in ongoing water adjudications with no imminent resolution as to the impact of reserved rights claims on existing property interests. The lack of any authoritative judicial decisions in the area of reserved rights continues to undermine the very reason behind water rights doctrines—namely, predictability that allows water to be put to its highest and best use. Absent

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1. *Winters v. United States*, 207 U.S. 564 (1908).

2. See *United States v. New Mexico*, 438 U.S. 696, 701–02, 714–15 (1978); *Cappaert v. United States*, 426 U.S. 128, 143 (1976); *Arizona v. California*, 373 U.S. 546, 599 (1963), *disavowed on other grounds*, *California v. United States*, 438 U.S. 645 (1978).

3. See *Wyoming v. United States*, 492 U.S. 406 (1989), *aff'd without opinion In re Gen. Adjudication of All Rights to Use Water in the Big Horn River Sys. (Big Horn II)*, 753 P.2d 76, 99 (Wyo. 1988).

4. See *e.g.*, *In re Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source (Gila III)*, 989 P.2d 739, 747 (Ariz. 1999), *cert. denied sub nom. Phelps Dodge Corp. v. United States and Salt River Valley Water Users' Ass'n v. United States*, 530 U.S. 1250 (2000).

5. See, *e.g.*, Status Conference Proceedings, Minutes of the Court, *United States v. Walker River Irrigation Dist.*, No. 3:73-cv-00127, In Equity No. C-125-B (D. Nev. 2008) (Doc. No. 1468) (After almost 20 years since case filing and 10 years since the Case Management Order was issued, the service of summons and complaint on all surface and groundwater users in Walker River system is still not complete. No answers have been filed and the court has not yet determined threshold legal issues needing to be addressed.).

6. See, *e.g.*, Arizona Water Settlements Act, Pub. L. No. 108-451, 118 Stat. 3478 (2004) (settling water rights claims of the Gila River Indian Community and the Tohono O'odham Nation).

7. See *id.*

such certainty, progress that depends upon the development of water rights remains stymied.

This issue is particularly compelling given the recent political<sup>8</sup> and scientific emphasis on the development of renewable energy projects, which can place considerable demands on water resources.<sup>9</sup> The western United States, where unresolved reserved rights claims predominate, is also the location of plentiful renewable energy resources such as solar, wind, and geothermal. With the growing concern over the impacts of global climate change and the local, state, and national political will shifting toward the utilization of renewable energy sources, the time is ripe for water rights holders to capitalize on funding opportunities, favorable tax benefits, long-term water planning, and market incentives geared toward meeting the nation's energy demands through renewable sources.

Many of the Indian tribes asserting unresolved *Winters* claims have abundant renewable resources and therefore are well positioned to play an important role in the new energy economy.<sup>10</sup> The U.S. Department of Energy (DOE) already facilitates this role by offering financial and technical assistance to tribes seeking to develop renewable energy projects for the purpose of both energy independence and export to non-Indian consumers.<sup>11</sup> Moreover, to ensure energy security into the future, the federal government is encouraging regional planning and management strategies for energy and water resources and has specifically noted that tribes should have a seat at the table in that process.<sup>12</sup> Other factors, such as the Environmental Protection Agency's (EPA) endangerment

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8. See American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009); American Clean Energy Leadership Act of 2009, S. 1462, 111th Cong. (2009).

9. See Todd Woody, *Alternative Energy Projects Stumble on a Need for Water*, N.Y. TIMES, Sept. 30, 2009, available at <http://www.nytimes.com/2009/09/30/business/energy-environment/30water.html>; U.S. DEP'T OF ENERGY, CONCENTRATING SOLAR POWER COMMERCIAL APPLICATION STUDY: REDUCING WATER CONSUMPTION OF CONCENTRATING SOLAR POWER ELECTRICITY GENERATION 6 (2009), available at [http://www1.eere.energy.gov/solar/pdfs/csp\\_water\\_study.pdf](http://www1.eere.energy.gov/solar/pdfs/csp_water_study.pdf) [hereinafter CONCENTRATING SOLAR POWER] (prepared in response to Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 603(b), 121 Stat. 1492 seeking a report on methods to reduce the amount of water consumed by concentrating solar power systems).

10. See, e.g., Energy Information Administration, *Renewable Potential Map: Mountain Division*, U.S. DEP'T OF ENERGY, [http://www.eia.doe.gov/emeu/reps/rpmap/rp\\_mountain.html](http://www.eia.doe.gov/emeu/reps/rpmap/rp_mountain.html) (last updated Nov. 29, 2005) (showing wind-resource potential in location of Confederated Salish and Kootenai Tribes of the Flathead Reservation, which still has unresolved reserved rights claims pending).

11. Energy Policy Act of 1992, Pub. L. No. 102-486, § 2606, 106 Stat. 2776.

12. See American Clean Energy and Security Act, H.R. 2454, 111th Cong. § 216A(b) (2009); American Clean Energy Leadership Act, S. 1462, 111th Cong. §§ 216(c), 363 (2009).

finding,<sup>13</sup> potential federal legislation regarding carbon-dioxide emissions,<sup>14</sup> state implementation of renewable portfolio standards,<sup>15</sup> and existing regional cap-and-trade programs<sup>16</sup> all demonstrate the trend toward increased renewable energy marketability and suggest tremendous opportunities for Indian tribes to use their renewable energy resources for economic development.

The limiting factor for tribes to fully participate in this wave of interest in renewable energy may be water. Depending upon the energy source and the technology required to produce electricity from that source, renewable energy projects can be very water intensive.<sup>17</sup> Because of the ongoing impasse regarding reserved rights claims, tribes may not develop potentially profitable renewable energy projects.

In sum, doctrinal uncertainty in the area of federal reserved rights is not only hurting traditional water uses such as agriculture and municipal applications, but it is potentially hindering action on national energy reform, in which Indian tribes could play an important role. This article explores these issues. Part II places the problem within context: Western water law has developed to provide assurance that a water user can reasonably rely upon investment-backed expectations that the water right will persist into the future. Part III provides background on the doctrine of federal reserved water rights and discusses some of the unresolved issues relating to the scope and reach of those rights. Part IV discusses the current groundswell of interest in renewable energy development and the potential for federal reserved water rights claims—if resolved—to play an important role in siting renewable projects. This article concludes that western states can achieve optimal progress in the development of renewable energy sources only when and if they definitively establish the scope of numerous federal reserved rights claims.

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13. Endangerment and Cause or Contribute Findings for Greenhouse Gases under § 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009) (to be codified at 40 C.F.R. ch. I).

14. American Clean Energy and Security Act, H.R. 2454, 111th Cong. (2009); American Clean Energy Leadership Act, S. 1462, 111th Cong. (2009).

15. See Energy Efficiency and Renewable Energy, *Summary of State Renewable Portfolio Standards*, U.S. DEP'T OF ENERGY, [http://apps1.eere.energy.gov/states/maps/renewable\\_portfolio\\_states.cfm](http://apps1.eere.energy.gov/states/maps/renewable_portfolio_states.cfm).

16. *Regional GHG Initiatives Hold Second Meeting*, WESTERN CLIMATE INITIATIVE NEWS (Dec. 7, 2009), <http://www.westernclimateinitiative.org/archives> (search by date).

17. U.S. DEP'T OF ENERGY, ENERGY DEMANDS ON WATER RESOURCES: REPORT TO CONGRESS ON THE INTERDEPENDENCY OF ENERGY AND WATER 38–39 (Dec. 2006), available at <http://www.sandia.gov/energy-water/docs/121-RptToCongress-EWwEIAcomments-FINAL.pdf> [hereinafter ENERGY DEMANDS].

## II. CERTAINTY AND THE EVOLUTION OF WESTERN WATER LAW

The doctrine of prior appropriation evolved from the particular needs of miners settling the western part of the United States in the mid-nineteenth century.<sup>18</sup> As had been the case under the English common law, the eastern states followed a riparian system of water allocation, which vested use rights in property owners adjacent to a waterway.<sup>19</sup> This system served the demographics and topography of the East fairly well but did not suit the arid West, where valuable water resources were often located at great distances from the places in which settlers could best put them to use.<sup>20</sup>

When the 49ers and others rushed to exploit the precious metal lodes found in the West, they often built elaborate diversion systems that carried surface waters many miles away from the source to where the mining and processing of ore took place.<sup>21</sup> These miners developed the law of prior appropriation because the concept of “first in time, first in right” was needed to protect the economic expectations that derived from the investment in these diversion works.<sup>22</sup> Under the rules followed by miners, the water right was the amount that the user had put to beneficial use.<sup>23</sup>

A mining operation was unworkable if it invested the labor and money into diverting surface waters only to have an upstream user adjacent to the waterway usurp the miner’s claimed right to the water flow.<sup>24</sup> Similarly, a downstream latecomer could not undermine an upstream mining diversion simply by having downstream riparian land ownership.<sup>25</sup> Additionally, the miners generally did not own the land that they mined and would thereby have no rights to the water under a system of riparian rights.<sup>26</sup> Eventually, all western states adopted the miners’ rule of first in time, first in right—either through statute or common law—as the doctrine of prior appropriation.<sup>27</sup>

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18. See A. DAN TARLOCK, *LAW OF WATER RIGHTS AND RESOURCES* § 5:4 (2009).

19. See JOSEPH L. SAX ET AL., *LEGAL CONTROL OF WATER RESOURCES* 9, 20, 22 (3d ed. 2000).

20. See *id.* at 284–86; *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443 (1882); *Irwin v. Phillips*, 5 Cal. 140 (1855).

21. See SAX ET AL., *supra* note 19, at 284–86.

22. See *id.*

23. See *id.*

24. See *id.*

25. See *id.*

26. See *id.* at 19, 20, 22.

27. See generally *id.* at 286.

The doctrine of prior appropriation provided the economic predictability needed to develop the West.<sup>28</sup> Arguably, water is the very bedrock of the western economy, and under the appropriative system, water users could safely rely on their investment-backed expectation to use the amount of water they had put to beneficial use.<sup>29</sup> The older the right, the higher its priority on the river system and the more value it held, both for establishing certainty and for potential alienability in the marketplace.<sup>30</sup>

Even as the mining boom faded away, the rationale for the law of prior appropriation remained equally strong for the development of agriculture and population centers throughout the West.<sup>31</sup> All of the western states recognize appropriative rights to surface water either exclusively or in concert with riparianism.<sup>32</sup> Now, as always, those states highly prize predictability in the availability and amount of a water right but also consider that predictability necessary for long-term economic development.<sup>33</sup> As this article posits, ongoing uncertainty in a certain aspect of water law—namely, federal reserved rights—is hindering the development of a new economy in the West that can take advantage of the abundance of renewable energy resources, the economic incentives, and the political support to develop those resources.

### III. THE UNCERTAIN STATUS OF FEDERAL RESERVED RIGHTS

#### A. Background on the *Winters* Doctrine

The concept of federal reserved rights, known as the *Winters* doctrine for the U.S. Supreme Court decision that established it, provides that, in setting aside federal reservations, the United States impliedly reserved sufficient water resources to satisfy the purposes of the reservation.<sup>34</sup> Federal reserved rights differ from rights acquired under state law in that reserved rights vest on the date a reservation was created—not when the water was first put to beneficial use—and cannot be lost

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28. Samantha K. Olson & Erin K.L. Mahaney, *Searching for Certainty in a State of Flux: How Administrative Procedures Help Provide Stability in Water Rights Law*, 36 McGEORGE L. REV. 73, 75–76 (2005).

29. *See id.*

30. *See SAX ET AL.*, *supra* note 19, at 99.

31. A. Dan Tarlock, *The Future of Prior Appropriation in the New West*, 41 NAT. RESOURCES J. 769, 770–71 (2001).

32. *See SAX ET AL.*, *supra* note 19, at 294–95.

33. *See Olson & Mahaney*, *supra* note 28, at 75–76.

34. *Winters v. United States*, 207 U.S. 564, 565 (1908).

through non-use.<sup>35</sup> Because reserved rights have a priority dating back to when a reservation was first created, which for many Indian reservations occurred in the mid-1800s, they are highly valuable within a system of prior appropriation.<sup>36</sup>

In the *Winters* case, the Court enjoined settlers upstream of the Fort Belknap Indian Reservation in Montana from constructing or maintaining dams and reservoirs that prevented Milk River waters from reaching the reservation.<sup>37</sup> Despite the settlers' claims of priority rights under Montana's law of prior appropriation, the Court concluded that the federal government could not have intended to confine Native Americans to reservations on arid lands without ensuring sufficient water resources for tribal residents.<sup>38</sup> In so doing, the Court recognized a federal reserved right to the amount of water necessary to satisfy the purpose of the reservation.<sup>39</sup>

Since the *Winters* decision, subsequent Supreme Court jurisprudence has confirmed the applicability of the reserved rights doctrine to Indian reservations. Most notably, in *Arizona v. California*, the Court declared it "impossible to believe" that those responsible for establishing five Indian reservations in California, Arizona, and Nevada were unaware that most of the reservation lands were "of the desert kind—hot, scorching sands" that would require Colorado River water to sustain the inhabitants.<sup>40</sup> As a result, the Court held that the United States, on behalf of those tribes, had a "present perfected right" to "the use of enough water from the Colorado River to irrigate the irrigable portions of the reserved lands."<sup>41</sup>

## B. Doctrinal Uncertainty in the Law of Federal Reserved Rights

Although the basic premise of the *Winters* doctrine—that, in setting aside an Indian or other federal reservation, the United States impliedly reserved sufficient water to satisfy the purposes of the reservation—is well established, court decisions thereafter regarding the scope and reach of reserved rights have resulted in more questions than answers. In some cases, the courts have sidestepped vexing issues in de-

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35. *Cappaert v. United States*, 426 U.S. 128, 138 (1976). Additionally, some reserved rights have been recognized as carrying a priority date from time immemorial. *See United States v. Adair*, 723 F.2d 1394, 1414 (9th Cir. 1983).

36. *Cappaert*, 426 U.S. at 138.

37. *Winters*, 207 U.S. at 565.

38. *Id.* at 576.

39. *See id.*

40. *Arizona v. California*, 373 U.S. 546, 599 (1963), *disavowed on other grounds*, *California v. United States*, 438 U.S. 645 (1978).

41. *Arizona*, 373 U.S. at 600.



lineating reserved rights.<sup>42</sup> In others, the courts have simply refused to set forth a definitive rule.<sup>43</sup> In others still, due to the procedural complexities involved in large water rights adjudications, the litigants are mired in threshold procedural issues such that the courts have not reached, much less decided, any substantive legal issues.<sup>44</sup> A reserved rights case has not come before the Supreme Court in more than 20 years,<sup>45</sup> and conflicting decisions from lower courts and state supreme courts leave few authoritative guideposts for litigants. As a result, numerous questions regarding federal reserved rights remain unresolved, as addressed below.

### 1. Which Federal Reservations Can Claim Reserved Rights?

U.S. Supreme Court caselaw explains that reserved rights claims include not only Indian reservations but also other federal facilities and land holdings such as military installations<sup>46</sup> and national monuments.<sup>47</sup> For example, in *Cappaert v. United States*, the Court applied the reserved rights doctrine to enjoin groundwater pumping that was lowering the water level of an underground pool in Devil's Hole National Monument, home to a unique desert fish.<sup>48</sup> Because the creation of the monument sought to preserve the pool and the rare species of fish that inhabited it, the Court held that the preexisting federal reservation took priority over the groundwater permit subsequently issued by the Nevada State Engineer.<sup>49</sup>

The *Winters* doctrine does not, however, extend to all federal reservations. In *United States v. New Mexico*, the Court interpreted the congressional declaration creating national forests to say that, under the facts before the Court, no reserved right existed to instream flows in a national forest.<sup>50</sup> The Court delineated between what it identified as "pri-

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42. See *Cappaert v. United States*, 426 U.S. 128, 142 (1976).

43. See *In re Gen. Adjudication of All Rights to Use Water in the Big Horn River Sys. (Big Horn II)*, 753 P.2d 76, 99 (Wyo. 1988), *aff'd without opinion sub nom. Wyoming v. United States*, 492 U.S. 406 (1989).

44. Status Conference Proceedings, *supra* note 5.

45. See *Wyoming v. United States*, 492 U.S. 406 (1989).

46. See *Nevada ex rel. Shamberger v. United States*, 165 F. Supp. 600, 608 (D. Nev. 1958), *aff'd*, 279 F.2d 699 (9th Cir. 1960) (holding that the federal government was not obligated to obtain a permit from the state engineer in order to pump groundwater from wells on land it had reserved for a naval ammunition depot).

47. See *Cappaert*, 426 U.S. at 142 (recognizing a reserved right for Devil's Hole National Monument).

48. *Id.* at 132, 143.

49. *Id.* at 143.

50. *United States v. New Mexico*, 438 U.S. 696, 701-02 (1978).

mary” and “secondary” purposes of national forests.<sup>51</sup> According to the Court, because instream flows could only be considered a secondary purpose, these flows did not meet the intent requirement needed to justify the recognition of a federal reserved right.<sup>52</sup>

The Court’s analysis in *United States v. New Mexico* set the stage for future factual disputes as to whether the maintenance of stream flow is “primary” to the purpose of a federal reservation.<sup>53</sup> The United States continues to assert reserved rights for national parks, national forests, and a host of other federal reservations that require water for instream flow purposes or otherwise.<sup>54</sup> The question of which federal land holdings and facilities can make legitimate claims under the *Winters* doctrine is so fact-specific that no real doctrinal certainty exists as to how courts will decide those claims.<sup>55</sup>

## 2. Is There a Reserved Right to Groundwater?

Another question contributing to the cloud on title created by claims to federal reserved rights is whether such rights apply to groundwater. Courts have been reluctant to apply the *Winters* doctrine to groundwater despite the hydrologic sensibility in doing so. In some instances, the courts have impliedly, rather than expressly, recognized reserved rights to groundwater.

For example, the U.S. District Court for the District of Nevada held that the United States was not obligated to obtain a permit from the Nevada State Engineer to pump groundwater from wells on land it reserved for a naval ammunition depot.<sup>56</sup> In another case, the U.S. District Court for the District of Montana found that “the same implications” for applying the *Winters* doctrine to surface waters “would apply to underground waters as well.”<sup>57</sup> In denying a claim by the Gila River Indian Reservation for waters of the Salt River, the Federal Circuit determined

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51. *Id.* at 715.

52. *Id.*

53. *Id.* at 716–17.

54. See Answer to Complaint, *United States v. Walker River Irrigation Dist.*, No. 3:73-cv-00127, In Equity No. C-125-B, (D. Nev. 1992) (Doc. No. 1); Counterclaim, *United States v. Walker River Irrigation Dist.*, No. 3:73-cv-00127, In Equity No. C-125-B, (D. Nev. 1997) (Doc. No. 59); Order on Stipulation, *United States v. Walker River Irrigation Dist.*, No. 3:73-cv-00127, In Equity No. C-125-B, (D. Nev. 1997) (Doc. No. 60) (asserting federal reserved rights claims for U.S. Army ammunition facility, U.S. Marine Corps training facility, national forest, Bureau of Land Management lands, and Indian lands).

55. See *New Mexico*, 438 U.S. at 701–02.

56. *Nevada ex rel. Shamberger v. United States*, 165 F. Supp. 600, 609 (D. Nev. 1958), *aff’d*, 279 F. 2d 699 (9th Cir. 1960).

57. *Tweedy v. Texas Co.*, 286 F. Supp. 383, 385 (D. Mont. 1968).

that "Gila River water and groundwater constituted the intended sources for irrigation of the Gila River Reservation."<sup>58</sup>

This issue came before the U.S. Supreme Court many years ago, but the Court declined to apply the *Winters* doctrine to groundwater.<sup>59</sup> In that case, the issue presented was the protection of an unusual desert fish whose sole habitat was an underground pool in Devil's Hole National Monument.<sup>60</sup> The water level in the pool was declining because of groundwater use outside the boundaries of the national monument, as allowed under a state pumping permit.<sup>61</sup> The Court upheld the injunction against groundwater pumping because the purpose of the federal reservation was to protect the habitat for the unique fish.<sup>62</sup> The Court based this holding on its conclusion that the water in the underground pool was surface water rather than groundwater and thus squarely within the four corners of the *Winters* doctrine.<sup>63</sup> In so doing, although the Court left open the important question of whether reserved rights to groundwater exist, it firmly established legal recognition of the hydrologic connectivity between surface and groundwater.<sup>64</sup>

Since then, only a few courts have addressed whether federal reserved rights to groundwater exist, and they have reached disparate results. The Wyoming Supreme Court refused to recognize a reserved right to groundwater.<sup>65</sup> Despite acknowledging that "[t]he logic which supports a reservation of surface water to fulfill the purposes of the reservation also supports reservation of groundwater," the court declined to recognize such a right because the parties could not cite to pertinent caselaw establishing the extension of the *Winters* doctrine to groundwater.<sup>66</sup>

In contrast, the Arizona Supreme Court engaged in a thorough analysis of U.S. Supreme Court precedent to conclude that federal re-

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58. *Gila River Pima-Maricopa Indian Cmty. v. United States*, 695 F.2d 559, 561 (Fed. Cir. 1982).

59. *Cappaert v. United States*, 426 U.S. 128, 142 (1976).

60. *Id.* at 131-32.

61. *Id.* at 133.

62. *Id.* at 141.

63. *Id.* at 142 (contending that the underground pool was surface water). *But cf.* *United States v. Cappaert*, 508 F.2d 313, 317 (9th Cir. 1974) (determining in the lower court that reserved rights extend to groundwater).

64. *Cappaert*, 426 U.S. at 141.

65. *In re Gen. Adjudication All Rights to Use Water in the Big Horn River Sys. (Big Horn II)*, 753 P.2d 76, 99-100 (Wyo. 1988), *aff'd without opinion sub nom.* *Wyoming v. United States*, 492 U.S. 406 (1989).

66. *Id.*

served rights necessarily apply to groundwater.<sup>67</sup> According to the Arizona Supreme Court, “[t]he significant question for the purpose of the reserved rights doctrine is not whether the water runs above or below the ground but whether it is necessary to accomplish the purpose of the reservation.”<sup>68</sup> Because some reservations had no perennial streams that could serve as a water source, the Arizona Supreme Court concluded that the United States must have intended to reserve sufficient groundwater resources to serve the needs of the reservation.<sup>69</sup>

Similarly, in *United States v. Washington*, the U.S. District Court for the Western District of Washington expressly held, “the reserved water rights doctrine extends to . . . groundwater even if groundwater is not connected to surface water.”<sup>70</sup> Unlike the Arizona Supreme Court, which limited the application of reserved rights to groundwater only where insufficient surface-water resources exist, the *Washington* court recognized no such limitations.<sup>71</sup> The inconsistency of these decisions, coupled with the absence of any decisive statement by the U.S. Supreme Court, has left the issue of reserved rights to groundwater in a continuing state of uncertainty.

Although it did not cite to *Cappaert*, the Ninth Circuit Court of Appeals held that both a federal surface water decree and the *Winters* doctrine prevented allocation of groundwater under state law that would adversely affect a tribe’s decreed surface water rights.<sup>72</sup> The court reasoned, “[s]urface water contributes to groundwater, and groundwater contributes to surface water. The reciprocal hydraulic connection between groundwater and surface water has been known to both the legal and professional communities for many years.”<sup>73</sup> In reaching its conclusion, the court noted the rule set forth in *Winters* that agreements regarding Indian water rights should be interpreted in favor of the tribes.<sup>74</sup>

Even if a litigant could establish a reserved right to groundwater, it is still unclear as to whether a court seeking to protect such a right has the authority to enjoin groundwater pumping outside the exterior

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67. *In re Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source (Gila III)*, 989 P.2d 739, 747 (Ariz. 1999), cert. denied sub nom. Phelps Dodge Corp. v. United States, 530 U.S. 1250 (2000).

68. *Id.*

69. *Id.* at 746.

70. *United States v. Washington*, 375 F. Supp. 2d 1050, 1078 n.8 (W.D. Wash. 2005), vacated pursuant to settlement by *United States ex rel Lummi Indian Nation v. Washington*, No. C01-0047Z, 2007 WL 4190400 (W.D. Wash. Nov. 20, 2007).

71. *See id.*

72. *United States v. Orr Water Ditch Co.*, 600 F.3d 1152, 1158–59 (9th Cir. 2010).

73. *Id.* at 1158.

74. *Id.* at 1159 (citing *Winters v. United States*, 207 U.S. 564, 576–77 (1908)).

boundaries of a federal reservation.<sup>75</sup> This issue implicates questions of state sovereignty, since enforcing a federal reserved right to groundwater by curtailing groundwater rights obtained under state law could upset longstanding property right expectations.<sup>76</sup> The outcome also turns on the groundwater regime followed by each individual state, be it absolute dominion, correlative rights, or prior appropriation.<sup>77</sup> In a state that follows the absolute dominion rule for groundwater, later claims for water rights will not be at a temporal disadvantage because of the rights to groundwater held equally by overlying landowners.<sup>78</sup> However, in a state in which a prior-appropriation system exists for groundwater, unappropriated groundwater may no longer be available, and asserting a reserved right to groundwater may be the only option.<sup>79</sup> In *Cappaert*, the U.S. Supreme Court set the stage for the resolution of this issue by affirming the injunction against a state groundwater user in favor of the federal reservation.<sup>80</sup> Nevertheless, the issue of whether a state groundwater right *must* give way to federal rights remains an open question.<sup>81</sup> Absent any clear answer from the Supreme Court, groundwater claims continue to create substantial uncertainty in the realm of the *Winters* doctrine.

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75. See Opening Brief at 8, *United States v. Walker River Irrigation Dist.*, No. 3:73-cv-00127, In Equity No. C-125-B (D. Nev. 2008) (Doc. No. 1412); see also *In re Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source*, 989 P.2d 739 (1999) (holding that federal reserved water rights holders enjoy greater protection from groundwater pumping than do holders of state law rights to the extent that greater protection may be necessary to maintain sufficient water to accomplish the purpose of a reservation), *cert. denied sub nom. Phelps Dodge Corp. v. United States and Salt River Valley Water Users' Ass'n v. United States*, 530 U.S. 1250 (2000).

76. *Contra Orr Water Ditch Co.*, 600 F.3d at 1158–59 (holding federal jurisdiction over surface water decree to prevent groundwater pumping under a state permit that could adversely affect the decreed surface water rights of the Pyramid Lake Paiute Tribe by stating: “[tribal surface water rights] cannot be defeated by allocation of water to others—whether by allocation of surface water or groundwater.”).

77. See generally *SAX ET AL.*, *supra* note 19, at 364–65, for a useful summary of various systems of groundwater allocation.

78. *Id.*

79. Nevada is one example. See Dep’t of Conservation & Natural Res., Div. of Water Res., *Designated Groundwater Basins of Nevada*, (Apr. 2010), [http://water.nv.gov/home/designated\\_basinmap.pdf](http://water.nv.gov/home/designated_basinmap.pdf) (map showing at least one groundwater basin within Walker River drainage—the subject of ongoing water rights litigation that includes reserved rights claims for groundwater—as being no longer open to new groundwater applications).

80. *Cappaert v. United States*, 426 U.S. 128, 141 (1976).

81. See *id.* at 141.

### 3. How Are Reserved Rights Quantified?

Even after the establishment of a reserved right, another question remains: How should courts quantify the amount of that right? Courts have used the “practicably irrigable acreage” (PIA) standard to quantify reserved rights.<sup>82</sup> This standard derives from the historical view that Indian reservations would provide a place for Native Americans to transition from a nomadic existence to one based on an agricultural economy.<sup>83</sup> Consistent with this view, the appropriate measure of water needed by a reservation, known as the PIA standard, would simply be the amount that would sustain the cultivation of arable land.<sup>84</sup>

In the years since the Supreme Court first announced the PIA standard, various commentators, judges, and courts have called it into question. For example, in *Wyoming v. United States*, an evenly divided Supreme Court upheld the PIA standard without opinion after Justice O’Connor’s recusal.<sup>85</sup> The public now has access to the draft opinions of that case, which reveal that the Court sought to do away with the PIA standard.<sup>86</sup> The draft majority opinion indicates that five justices leaned toward introducing a “sensitivity doctrine” to resolve the quantification of reserved rights in a manner that would better accommodate the impact of Indian reserved rights on private appropriators.<sup>87</sup> Justice Brennan’s draft dissenting opinion challenged the proposed sensitivity doctrine as penalizing tribes for the lack of government investment in irrigation works on reservations and undermining the protections afforded by the *Winters* doctrine.<sup>88</sup>

The Arizona Supreme Court likewise has rejected the PIA standard.<sup>89</sup> In the Gila River adjudication, the Arizona Supreme Court refused to adopt the PIA standard as the exclusive means of quantifying federal reserved rights.<sup>90</sup> Instead, the court opted for an approach that balances a number of factors on a case-by-case basis particular to individual tribes.<sup>91</sup> These factors may include a tribe’s historical water use,

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82. *Arizona v. California*, 373 U.S. 546, 600–01 (1963), *disavowed on other grounds*, *California v. United States*, 438 U.S. 645 (1978).

83. *See id.* at 599–601.

84. *See id.*

85. *Wyoming v. United States*, 492 U.S. 406, 407 (1989).

86. Andrew C. Mergen & Sylvia F. Liu, *A Misplaced Sensitivity: The Draft Opinions in Wyoming v. United States*, 68 U. COLO. L. REV. 683, 685 (1997).

87. *Id.* at 684.

88. *Id.* at 741.

89. *In re Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source (Gila V)*, 35 P.3d 68, 78–79 (Ariz. 2001).

90. *Id.*

91. *Id.*

tribal culture, geography, topography and natural resources (including groundwater availability), current economic base, and population.<sup>92</sup> According to the Court, the weighing of such factors can better achieve the objective of ensuring that the reservation adequately serves as a permanent homeland for the tribe.<sup>93</sup>

Arizona's approach is extremely fact intensive. To calculate an actual number, the court stressed, "The most important thing is that the lower court should have before it actual and proposed uses, accompanied by the parties' recommendations regarding feasibility and the amount of water necessary to accomplish the homeland purpose."<sup>94</sup> In other words, the Arizona Supreme Court recommended a method for quantification that promised neither consistent application nor doctrinal certainty as to the amount of acre-feet that a reserved right claim might encompass.<sup>95</sup>

#### 4. *To What Uses Can Reserved Rights Be Put?*

Another ambiguity in the doctrine of federal reserved water rights questions the manner in which holders of water rights can put their water to beneficial use. The PIA standard assumed the use was agriculture because the common thinking at the time of the *Winters* doctrine's establishment was that tribes would become agrarian societies.<sup>96</sup> Since then, tribes have sought to diversify their economies, using their water rights to develop resorts, recreational facilities, casinos, and other non-agricultural purposes.<sup>97</sup> In fact, in many places, agriculture may be far less economical than other uses of water rights.<sup>98</sup>

Similarly, the law remains unclear as to whether holders of reserved rights can lease or sell their rights for uses off of the reservation.<sup>99</sup> Since a reserved right is defined as such water that is necessary to satisfy the purpose of the reservation, logic would suggest that off-reservation

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92. *Id.* at 79–80.

93. *Id.*

94. *In re Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source (Gila V)*, 35 P.3d 68, 79 (Ariz. 2001).

95. *See id.*

96. *Arizona v. California*, 373 U.S. 546, 600–01 (1963), *disavowed on other grounds*, *California v. United States*, 438 U.S. 645 (1978).

97. *See In re Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source (Gila V)*, 35 P.3d 68, 71, 78–79 (Ariz. 2001).

98. Tarlock, *supra* note 31, at 773 (noting the decline in irrigated agriculture throughout the West).

99. *See In re All Rights to Use Water in the Big Horn River Sys. (Big Horn II)*, 753 P.2d 76, 99 (Wyo. 1988), *aff'd without opinion sub nom. Wyoming v. United States*, 492 U.S. 406 (1989).

uses exceed the bounds of beneficial use.<sup>100</sup> Like many aspects of *Winters* rights, however, a strict interpretation of the doctrine to limit marketability of water can have a profound and, from some perspectives, unjustified practical effect on tribes.<sup>101</sup> Often, off-reservation marketing is the result of a water rights settlement and seeks to satisfy Indian *Winters* claims while ensuring continued water delivery to non-Indian users.<sup>102</sup> Without judicial resolution, this issue continues to contribute to the cloud of uncertainty inherent to unresolved *Winters* claims.

##### 5. What Is the Impact of Environmental Protection Laws on Reserved Rights?

All of these issues are compounded by the potential impacts to existing water rights created by federal legislation such as the Clean Water Act<sup>103</sup> and the Endangered Species Act<sup>104</sup> and common-law principles such as the public trust doctrine.<sup>105</sup> Laws designed to protect environmental values can have the practical effect of undermining the predictability of existing water rights systems. Where, over time, water diversions cause collective environmental impacts that implicate environmental laws, enforcement of such environmental laws could curtail a water right at some future unknown date. For example, the protections of the Endangered Species Act have led courts to uphold cuts to water deliveries in order to protect listed species.<sup>106</sup> Similarly, the legal authority of the public trust doctrine can undermine the entire framework of water rights allocation if the water agency administering water transfers failed to give weight to trust values.<sup>107</sup>

The impacts of environmental laws are certainly not limited to federal reserved rights. To the contrary, all holders of water rights under both state and federal law feel these impacts. However, for tribes seeking to develop newly decreed or newly settled reserved rights, it is unclear

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100. *Winters v. United States*, 207 U.S. 564, 565–67 (1908).

101. See Christine Lightenfels, *Indian Reserved Water Rights: An Argument for the Right to Export and Sell*, 24 LAND & WATER L. REV. 131 (1989); David Getches, *Management and Marketing of Indian Water: From Conflict to Pragmatism*, 58 COLO. L. REV. 515, 541–42 (1988).

102. See SAX ET AL., *supra* note 19, at 847–48, 865–66.

103. See, e.g., PUD No. 1 v. Wash. Dep't of Ecology, 511 U.S. 700, 719–20 (1994) (concluding that the maintenance of instream flows is within the ambit of Clean Water Act regulation).

104. See, e.g., *Kandra v. United States*, 145 F. Supp. 2d 1192, 1201 (D. Or. 2001) (upholding Bureau of Reclamation's cuts to water deliveries under the Endangered Species Act).

105. See, e.g., *National Audubon Soc'y v. Superior Court (Mono Lake Case)*, 658 P.2d 709, 728 (Cal. 1983) (requiring the state "to take public trust into account in the planning and allocation of water resources").

106. *Kandra*, 145 F. Supp. 2d at 1201.

107. *National Audubon*, 658 P.2d at 728.



whether the enforcement of such laws as the Endangered Species Act can subsequently limit those rights.<sup>108</sup> One could argue that, under such circumstances, a tribe should not shoulder the burden of the historical mismanagement of a water resource that resulted in an endangered species listing.<sup>109</sup> Because the future effects of environmental laws on existing water users are difficult to predict, they compound the existing doctrinal uncertainty regarding federal reserved rights.

6. *Do Preclusion Doctrines and Equitable Defenses Bar Winters Claims?*

Also unclear with respect to the *Winters* doctrine is whether the federal government can assert reserved rights claims after issuance of a final decree that resolves the respective rights of water rights claimants. The U.S. Supreme Court has spoken on this issue and held that, upon entrance of a decree, the doctrine of *res judicata* bars the reopening of a reserved water rights adjudication—even if the United States has erroneously omitted certain claims or failed to adjudicate prior claims at all.<sup>110</sup> Nevertheless, whether collateral estoppel bars certain claims remains an open question.<sup>111</sup> Likewise, in situations in which the United States has long delayed asserting reserved rights claims, it is unclear whether the equitable doctrines of laches and estoppel require dismissal of those claims.<sup>112</sup>

In the *Gila River* adjudication, the Arizona Supreme Court held that the earlier Globe Equity Decree did not have a total preclusive effect on subsequent claims.<sup>113</sup> Specifically, the court found that the earlier decree had adjudicated only mainstem and not tributary claims.<sup>114</sup> With regard to claims that the court determined had been within the ambit of the earlier decree, the San Carlos Apache Tribe argued that the United States' representation in the Globe Equity litigation had been "so inadequate as to prevent the presence of privity between the Tribe and the

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108. See Scott McElroy, *History Repeats Itself—A Response to the Opponents of the Colorado Ute Indian Water Rights Settlement Act of 1988*, 2 U. DENV. WATER L. REV. 244 (1999).

109. See *id.* at 251–52.

110. See *Nevada v. United States*, 463 U.S. 110, 130–31 (1983); *Arizona v. California*, 460 U.S. 605, 619 (1983); see also *United States v. Bell*, 724 P.2d 631, 643 (Colo. 1986).

111. See *United States v. Jesse*, 744 P.2d 491, 503–04 (Colo. 1987).

112. See Walker River Irrigation District's Opening Brief on Threshold Issues at 12, *United States v. Walker River Irrigation Dist.*, Case No. 3:73-cv-00127, In Equity No. C-125-B (D. Nev. 2008) (Doc. No. 1416) (challenging the court's jurisdiction to consider reserved rights claims based upon laches and estoppel).

113. *In re Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source*, 127 P.3d 882, 894 (Ariz. 2006).

114. *Id.*

Government.”<sup>115</sup> Ultimately, on the basis of comity, the court did not resolve the issue presented.<sup>116</sup>

The United States continues to assert reserved rights claims where it did not make a timely or adequate claim for reserved rights prior to the resolution of an ongoing stream adjudication.<sup>117</sup> For example, in the Walker River litigation in Nevada, the U.S. District Court entered the final decree in 1936, which was a final judgment adjudicating the respective rights to the waters of the Walker River.<sup>118</sup> The Walker River litigation was an action in equity commenced by the United States as plaintiff on behalf of the Walker River Paiute Tribe against 253 upstream appropriators of Walker River waters.<sup>119</sup> Under this final decree, the United States received on behalf of the Tribe the right to irrigate 2,100 acres on the reservation at a rate of 26.25 cubic feet per second for a 180-day irrigation season, in addition to domestic and stock-water rights and water rights for power generation during the non-irrigation season.<sup>120</sup> Consistent with the *Winters* doctrine, the court determined that this amount was necessary to fulfill the purposes of the reservation.<sup>121</sup>

Notably, the United States was also in the process of constructing a dam on the Walker River Paiute Reservation in 1936, the year that the Walker River Decree became final, but did not make a claim for water-storage rights in the reservoir until 1992—almost 60 years after entry of final judgment.<sup>122</sup> Likewise, although Congress added 167,460 acres to the reservation for grazing purposes in 1936, the United States did not assert water rights claims for these lands until 1992.<sup>123</sup> Then, in 1997, the United States amended its pleadings to assert, for the first time, claims that included surface as well as groundwater sources and sought re-

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115. *Id.* at 897 (citing Restatement (Second) of Judgments § 42(1)(e)).

116. *In re* Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source, 127 P.3d 882, 894 (Ariz. 2006).

117. *See id.* *See also* Answer to Complaint, United States v. Walker River Irrigation Dist., Case No. 3:73-cv-00127 (D. Nev. 1992) (Doc. No.1); Counterclaim, United States v. Walker River Irrigation Dist., Case No. 3:73-cv-00127 (D. Nev. 1997) (Doc. No. 59); Order on Stipulation, United States v. Walker River Irrigation Dist., Case No. 3:73-cv-00127 (D. Nev. 1997) (Doc. No. 60) (asserting federal reserved rights claims in 1992, almost 60 years after final decree entered in the Walker River litigation); United States v. Walker River Irrigation Dist., 11 F. Supp. 158 (D. Nev. 1935), *rev'd on other grounds*, 104 F.2d 334 (9th Cir. 1939).

118. *See* United States v. Walker River Irrigation Dist., 11 F. Supp. 158 (D. Nev. 1935), *rev'd on other grounds*, 104 F.2d 334 (9th Cir. 1939).

119. *See id.*

120. *See id.*

121. United States v. Walker River Irrigation Dist., 104 F.2d 334 (9th Cir. 1939).

122. *See* Answer to Complaint, *Walker River Irrigation Dist.*, *supra* note 117.

123. Motion for Order For Notice of Proceedings at 7, United States v. Walker River Irrigation Dist., Case No. 3:73-cv-00127, In Equity No. C-125-B (D. Nev. 1992) (Doc. No. 1); Act of June 22, 1936, 49 Stat. 1806, 1806-07.

served rights for other Indian tribes, individual allottees, a U.S. Army ammunition plant, the Toiyabe National Forest, the U.S. Marine Corps Mountain Warfare Training Center, and the Bureau of Land Management.<sup>124</sup> The establishment of some of these federal reservations occurred both before entry of the final Walker River Decree in 1936 and after the final judgment.<sup>125</sup>

In response to these claims, the parties to the final decree or their successors-in-interest have raised the equitable defenses of laches and estoppel and questioned the decree court's jurisdiction to hear these claims under the preclusion doctrines of res judicata and collateral estoppel.<sup>126</sup> While the Supreme Court has provided some guidance on the res judicata issue,<sup>127</sup> the assertion of reserved rights claims that purport to fall outside the bar of *Nevada v. United States* adds to the ongoing doctrinal uncertainty regarding reserved rights. The assertion of these rights also adds to the complexity of the ensuing litigation, prevents the speedy resolution of reserved rights claims, and perpetuates the cloud over title to water rights.

The questions presented by such late-filed claims are particularly perplexing: Can the United States obtain reserved rights for those later-established federal reservations and thereby upset existing property interests established under state law? If no unappropriated water existed at the time of these later reservations, whose rights will the newly asserted federal claims curtail or abolish altogether? If the priority date for the water rights of the newly established reservations is the date of the reservation's creation, what benefits do these rights bestow to the United States that are any different than water rights established under the state law of prior appropriation? These questions and the possible impact of the doctrines of laches, estoppel, and preclusion contribute to some of the ongoing uncertainty looming over many water rights claims.

7. *Can Doctrinal Certainty Ever Be Achieved Given the Complexity of Stream Adjudications and the Push Toward Negotiated Settlements?*

A primary reason why the contours of the *Winters* doctrine remain uncertain is that courts simply do not reach the merits of these perplexing issues due to the daunting size and scope of stream adjudications. The large-scale nature of water rights litigation precludes the routine dis-

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124. Counterclaim, *United States v. Walker River Irrigation Dist.*, Case No. 3:73-cv-00127, In Equity No. C-125-B (D. Nev. 1997) (Doc. No. 59).

125. *See id.*

126. *See* Opening Brief, *United States v. Walker River Irrigation Dist.*, Case No. 3:73-cv-00127, In Equity No. C-125-B (D. Nev. 2008) (Doc. No. 1416).

127. *Nevada v. United States*, 463 U.S. 110, 130-31 (1983).

position of reserved rights claims. Courts overseeing such water rights disputes simply do not have the opportunity to consider and dispose of the many legal issues regarding reserved rights because they must first address complex case-management issues.<sup>128</sup>

For example, in the conflict over the Walker River in Nevada, the current phase of the litigation commenced in 1992, yet at the time of this writing the plaintiffs still have not completed service of the summons and complaint on the many water users whom their claims may impact.<sup>129</sup> Because of such difficult procedural issues, there has yet to be any dispositive motion practice on the pleadings. In fact, not until many years after the plaintiffs filed their initial pleadings did the court even ask for briefing on the threshold legal issues that the parties believe the court will need to address.<sup>130</sup> With a case of its size, discovery and dispositive motion practice could involve another decade of work. Where water rights cases have not moved beyond the pleadings stage, much less reached the merits of the reserved rights claims, it becomes clear why there have been so few judicial decisions addressing the *Winters* doctrine.

Given the time necessary to render decisions on the substantive issues and for the cases to move through the appellate process, another quarter century could pass before a suit seeking to resolve the contours of a reserved water right comes before the U.S. Supreme Court. Even then, the Supreme Court could simply deny certiorari. In other words, few prospects exist for the expedient resolution of the pressing legal questions regarding federal reserved rights. Moreover, due to the risks of

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128. See *In re* Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source, 989 P.2d 739 (Ariz. 1999) (en banc), cert. denied sub nom. Phelps Dodge Corp. v. United States and Salt River Valley Water Users' Ass'n v. United States, 530 U.S. 1250 (2000); 35 P.3d 68 (Ariz. 2001) (en banc) (in 40 years of litigation, only two substantive decisions addressing legal issues surrounding reserved rights claims); see also State of Idaho, Snake River Basin Court of Adjudications, Idaho Water Adjudications, <http://www.srba.state.id.us>. (showing complicated case management required for Snake River Basin adjudication in Idaho for which a special court system was established); see also State of Arizona, Judicial Branch, Maricopa County Superior Court, General Stream Adjudications, <http://www.superiorcourt.maricopa.gov/SuperiorCourt/Adjudications/Index.asp> (for Arizona water rights adjudication); Dep't of Natural Res. & Conservation, Water Adjudication Bureau, [http://dnrc.mt.gov/wrd/water\\_rts/adjudication/](http://dnrc.mt.gov/wrd/water_rts/adjudication/) (water court in Montana established for purpose of adjudicating conflicting claims); State of Washington, Dep't of Ecology, Water Right General Adjudications, <http://www.ecy.wa.gov/programs/wr/rights/adjhome.html> (Yakima River water rights adjudication).

129. *United States v. Walker River Irrigation Dist.*, No. 3:73-cv-00127, In Equity No. C-125-B (D. Nev. 2008)

130. *Id.* See Opening Briefs on Threshold Issues (2008) (Docs. 1411-17).

a negative Supreme Court decision that could further erode the reserved rights doctrine, tribes may be inclined to avoid judicial resolution.

Recognizing these obstacles and facing the high cost of litigation, many litigants have turned to negotiated settlements.<sup>131</sup> Although themselves incredibly complex and difficult to achieve, water rights settlements may ultimately offer more expedited resolution of reserved rights claims.<sup>132</sup> Each negotiation is different, however, and a settlement—while perhaps beneficial for the settling parties—does not provide any doctrinal certainty for future litigants. Because of ongoing uncertainty as to what federal reserved rights a claimant can establish and the scope and amount of those rights, claimants of both state and federal rights continue to be hamstrung from putting the claimed water to beneficial use.

#### IV. THE ROLE OF DOCTRINAL UNCERTAINTY IN RENEWABLE ENERGY DEVELOPMENT

##### A. The Push Toward Renewables

While this doctrinal uncertainty regarding reserved rights continues to pervade water rights adjudications and settlement efforts, a groundswell of interest in renewable energy development has grown at the local, state, federal, and international level. Climate change is now at the forefront of the national dialogue, with an increasing concern regarding the nation's carbon footprint. From a national security perspective, the United States seeks to create a comprehensive energy policy and move toward greater energy independence.<sup>133</sup> Many states, municipalities, and tribes now see renewable energy not only as a source of "green" power but also as a means of economic diversification. Given the momentum toward renewable energy development, the time is ripe to implement such projects.

A number of recent legislative and regulatory developments at the state, regional, and federal levels exemplify the push toward renewable energy sources. Many states have developed renewable portfolio standards that require retail electricity providers to obtain a certain per-

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131. John Folk-Williams, *The Use of Negotiated Agreements to Resolve Water Disputes Involving Indian Rights*, 28 NAT. RESOURCES J. 63 (1988); PETER E. SLY, *RESERVED WATER RIGHTS SETTLEMENT MANUAL* (1989).

132. Water rights settlements often involve large infusions of federal money in order to assure that settling tribes, which are allocated "paper" water rights, can construct the necessary conveyance infrastructure to transport water to the reservation. See SAX ET AL., *supra* note 19, at 863–64.

133. ENERGY DEMANDS, *supra* note 17, at 11.

centage of their portfolio from renewable sources.<sup>134</sup> Renewable projects have therefore started to make economic sense, creating a market demand for wind, solar, geothermal, biomass, and other renewable energy sources.<sup>135</sup>

Additionally, some regions of the country have established carbon cap-and-trade systems in order to reduce greenhouse gas emissions.<sup>136</sup> Under such systems, the overseeing body, be it state, regional, national, or international, sets an overall limit on carbon emissions and then distributes or auctions pollution allowances.<sup>137</sup> Improvements in efficiencies and the use of renewable energy sources can achieve reductions in carbon emissions such that the resulting surplus pollution allowances become marketable.<sup>138</sup> Over time, the governing body reduces the cap with the goal of driving further emissions reductions through technological innovation and economic incentives.<sup>139</sup> According to the theory behind cap and trade, as market forces deriving from the decreased number of available allowances increase the cost to pollute, renewable projects become more financially feasible.<sup>140</sup>

In 2009, both houses of Congress signaled their support of renewable energy development and suggested that a law to improve the economic viability of such projects could be forthcoming. The House of Representatives passed H.R. 2454, the American Clean Energy and Security Act, which would create a federal cap-and-trade regime designed to reduce greenhouse gas emissions 83 percent by 2050.<sup>141</sup> Later that year, the Senate passed S. 1462, the American Clean Energy Leadership Act,

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134. See, e.g., Nev. Rev. Stat. § 704.7821 et seq. (2009); see also Energy Efficiency and Renewable Energy, *States with Renewable Portfolio Standards*, U.S. DEP'T OF ENERGY (May 2009), [http://apps1.eere.energy.gov/states/maps/renewable\\_portfolio\\_states.cfm](http://apps1.eere.energy.gov/states/maps/renewable_portfolio_states.cfm).

135. *Renewable Portfolio Standards Fact Sheet*, U.S. EPA, [http://www.epa.gov/chp/state-policy/renewable\\_fs.html](http://www.epa.gov/chp/state-policy/renewable_fs.html) (last updated Apr. 2009).

136. For example, the Western Climate Initiative is a consortium of U.S. states, Canadian provinces, Mexican states, and tribes that are interested in collaborating to combat climate change at a regional level by developing and implementing a regional cap-and-trade program. See <http://www.westernclimateinitiative.org>; see also Regional Greenhouse Gas Initiative (RGGI), <http://www.rggi.org/home>; Midwestern Greenhouse Gas Reduction Accord, <http://www.midwesternaccord.org>; see generally Cal. A.B. 32, 2006 Cal. Stat., ch. 488 (codified at Cal. Health & Safety Code §§ 38500–38599 (“The California Global Warming Solutions Act of 2006”).

137. Pew Ctr. on Global Climate Change & Pew Ctr. on the States, *Climate Change 101: Cap and Trade 5*, in CLIMATE CHANGE 101: UNDERSTANDING AND RESPONDING TO GLOBAL CLIMATE CHANGE (Jan. 2009), available at <http://www.pewclimate.org/docUploads/Climate101-CapTrade-Jan09.pdf>.

138. *Id.* at 1.

139. *Id.* at 3.

140. *Id.* at 8–9.

141. American Clean Energy and Security Act, H.R. 2454, 111th Cong. (2009).

which also included provisions to encourage renewable energy production through market incentives.<sup>142</sup> Although Congress has yet to enact final energy legislation, these 2009 efforts outlined a trend toward renewable resources.<sup>143</sup>

Even as federal energy legislation has stalled, the economic feasibility of renewable projects is likely to remain strong due to regulatory activity at the federal level. In 2007, the Supreme Court rendered a decision in *Massachusetts v. EPA*, holding that carbon dioxide is an “air pollutant” within the meaning of the Clean Air Act.<sup>144</sup> According to the Supreme Court, EPA had to either regulate greenhouse gases under the Clean Air Act or explain why it was unwilling to do so.<sup>145</sup> With that direction, EPA accepted comments, held a number of public hearings on its proposed finding, and, at the end of 2009, pursuant to its authority under Section 202(a) of the Clean Air Act, issued an endangerment finding for carbon dioxide.<sup>146</sup>

The finding is EPA’s determination that greenhouse gases pose a danger to human health and the environment.<sup>147</sup> With this new assertion of regulatory authority, EPA could regulate carbon dioxide emissions from vehicles, power plants, factories, refineries, and other major sources under the Clean Air Act.<sup>148</sup> The finding could also prompt considerable litigation under federal statutes and common law tort theories.<sup>149</sup> In the face of such prospects, growth in the renewable energy sector is likely to occur in the future.

## B. Water Demands of Renewable Energy Projects

The federal government’s interest in ensuring energy and water security for the nation’s future will also likely facilitate the push toward renewable projects. Pursuant to the request of Congress, DOE has issued a report on the interdependency of energy and water.<sup>150</sup> Congress asked DOE for “a report on energy and water interdependencies, focusing on

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142. American Clean Energy Leadership Act, S. 1462, 111th Cong. (2009).

143. *See id.*

144. *Massachusetts v. E.P.A.*, 549 U.S. 497, 532 (2007).

145. *Id.* at 533–34.

146. Endangerment and Cause or Contribute Findings for Greenhouse Gases under § 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009) (to be codified at 40 C.F.R. ch. I).

147. *Id.* at 66,523.

148. *Massachusetts v. E.P.A.*, 549 U.S. 497, 533 (2007); Steven Jones, *EPA’s Endangerment Finding Could Spur More NEPA, Nuisance Litigation*, MARTEN LAW (Dec. 10, 2009), <http://www.martenlaw.com/newsletter/20091210-epa-endangerment-finding>.

149. Jones, *supra* note 148.

150. ENERGY DEMANDS, *supra* note 17.

threats to national energy production that might result from limited water supplies.”<sup>151</sup> In response, DOE recognized the importance of securing water and energy resources and engaging in comprehensive planning to ensure adequate supplies of both into the future.<sup>152</sup> Because many parts of the energy sector use water, DOE recommended the co-location of energy and water facilities in order to maximize efficiencies.<sup>153</sup>

Existing and expected strains on water supply and energy delivery have prompted such broad-based planning. A 2003 study conducted by the Government Accounting Office showed that most state water managers expected either local or regional water shortages within 10 years under average climate conditions.<sup>154</sup> These shortages will likely become particularly acute in western states already struggling with wide-reaching water rights conflicts and are sure to intensify as climate impacts on water resources increase.

In many places, the predicted water scarcity will likely impact power generation. For example, on the Colorado River, reduced flows through the turbines at Hoover Dam threaten the long-term power supply for 29 million people in three western states.<sup>155</sup> DOE has already noted that “[o]peration of some energy facilities has been curtailed due to water concerns.”<sup>156</sup> As a result of these concerns, DOE emphasized the need for collaboration on energy and water-resource planning among stakeholders and all levels of government.<sup>157</sup>

Such planning is particularly important because some renewable energy sources are relatively water intensive. According to DOE, “water withdrawals for thermoelectric power generation alone are comparable to water withdrawals for irrigation.”<sup>158</sup> Water demand for power generation is likely to continue as the energy sector trends toward closed-loop cooling systems, which have reduced water withdrawal requirements but consume more of the water withdrawn than their open-loop counterparts.<sup>159</sup> In a closed-loop system, water flows in a closed loop through a cooling tower or cooling pond, which results in considerable evaporative

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151. *Id.* at 9 (citation omitted).

152. *See generally id.* at 49.

153. *Id.* at 12, 17, 49.

154. U.S. GOV'T ACCOUNTING OFFICE, GAO-03-514, FRESHWATER SUPPLY: STATES' VIEWS OF HOW FEDERAL AGENCIES COULD HELP THEM MEET THE CHALLENGES OF EXPECTED SHORTAGES 5 (2003).

155. *See* News Release, Colorado River Commission of Nevada, Legislation Extending Hoover Power Contracts Introduced in U.S. Congress (Dec. 17, 2009), [http://crc.nv.gov/docs/20091217\\_CRC\\_PR\\_Hoover\\_Legislation.pdf](http://crc.nv.gov/docs/20091217_CRC_PR_Hoover_Legislation.pdf).

156. ENERGY DEMANDS, *supra* note 17, at 9.

157. *Id.* at 49.

158. *Id.* at 17.

159. *Id.* at 34.



losses.<sup>160</sup> Since the 1970s, most new power plants employ the closed-loop technology because, although the technology is more water-intensive, it is much more efficient in terms of the electricity produced.<sup>161</sup> Most renewable technologies incorporate a closed-loop system and can use just as much, if not more, water than traditional energy sources.<sup>162</sup>

In its December 2006 Report to Congress on the Interdependency of Energy and Water, DOE identified the water demands of various renewable energy processes.<sup>163</sup> DOE estimates that a geothermal steam plant using a closed-loop process consumes approximately 1,400 gallons of water/megawatt hour (MWh) of electricity produced.<sup>164</sup> Similarly, a solar trough or solar tower system using a closed-loop cooling system is also water intensive, requiring between 760 and 920 gallons of water/MWh of electricity produced.<sup>165</sup> In many instances, this is more water than conventional power plants that run on coal or natural gas would consume.<sup>166</sup> Alternately, wind generation can demand as little as one gallon of water/MWh while solar photovoltaic (PV) uses approximately 30 gallons/MWh.<sup>167</sup>

The significant water needs of some renewable energy projects have attracted attention recently, particularly for proposed solar thermal and biomass gasification projects. In particular, the technology known as solar troughs can make huge demands on water sources.<sup>168</sup> In a 2009 Report to Congress prepared in response to the Energy Independence and

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160. *Id.* at 18–19.

161. ENERGY DEMANDS, *supra* note 17, at 17, 34–35.

162. *Id.* at 38–39.

163. *Id.*

164. *Id.*

165. *Id.* Wind and solar photovoltaic panels use much less water, which is generally only needed to clean the blades of the wind turbines or the photovoltaic panels. *Solar Power and Water Consumption: Renewable Energy News*, ENERGY MATTERS (May 4, 2009), [http://www.energymatters.com.au/index.php?main\\_page=news\\_article&article\\_id=426](http://www.energymatters.com.au/index.php?main_page=news_article&article_id=426); *How Much Water Do Wind Turbines Use Compared with Conventional Power Plants?*, AMERICAN WIND ENERGY ASS'N, <http://www.awea.org/faq/water.html> (last visited Oct. 12, 2010).

166. See ENERGY DEMANDS, *supra* note 17.

167. See AMERICAN WIND ENERGY ASS'N, *supra* note 165, at tbl. “Water Consumption—Wind and Solar” (citing Meridian Corp., *Energy System Emissions and Materials Requirements* 23 (1989)).

168. Woody, *supra* note 9. Solar thermal plants are more attractive for financing because they use cheaper technology than photovoltaic panels. *Id.* They involve mirrors placed around a central cooling tower or in long troughs. CONCENTRATING SOLAR POWER, *supra* note 9, at 8. The mirrors heat a liquid to create steam that drives an electricity-generating turbine. *Id.* The steam that is produced must be condensed back to water and cooled for reuse, a system called wet cooling. *Id.*

Security Act of 2007,<sup>169</sup> DOE looked at reducing the water consumption of facilities that use concentrated solar power to generate electricity.<sup>170</sup> Like conventional power plants, concentrated solar power technologies require a substantial amount of water for cooling and steam generation.<sup>171</sup> Importantly, these types of systems will likely be located in areas of the Southwest with the greatest solar intensity, which is precisely where water demands are the most acute.<sup>172</sup>

Solar thermal developments are springing up all over the desert, but planners cannot overlook their demand on water resources.<sup>173</sup> Indeed, many proposed solar thermal projects are facing considerable local opposition because of their impact on local water resources.<sup>174</sup> In sum, as the national momentum continues to push toward renewable energy production, the demands on water supplies—particularly in the West, where renewable resources are most plentiful—will likely increase.

### C. The Potential Role of Tribes in the New Energy Economy

Coincidentally, the same “hot scorching sands”<sup>175</sup> that led the Supreme Court to find an implied reservation of sufficient water rights to meet the needs of Indian reservations are also prime locations for the development of renewable energy resources.<sup>176</sup> Western states and many of the large Indian reservations located there have the geologic and topographic qualities necessary to develop geothermal, wind, solar, and biomass projects.<sup>177</sup> The same area, however, also is home to some of the most contentious water rights disputes in the country.<sup>178</sup> For example, in

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169. Pub. L. No. 110-140, § 603(b) (“the Secretary of Energy shall transmit to Congress a report on the results of a study on methods to reduce the amount of water consumed by concentrating solar power systems.”).

170. CONCENTRATING SOLAR POWER, *supra* note 9, at 8.

171. *Id.* at 7.

172. *Id.* at 6.

173. Woody, *supra* note 9.

174. *See id.*

175. *Arizona v. California*, 373 U.S. 546, 599 (1963), *disavowed on other grounds*, *California v. United States*, 438 U.S. 645 (1978).

176. *See* U.S. DEP’T OF ENERGY, RENEWABLE ENERGY DEVELOPMENT ON TRIBAL LANDS 6–7 (Dec. 2004), available at <http://www.nrel.gov/docs/fy10osti/48815.pdf>; *see also* Energy Info. Admin., *Mountain Division Renewable Energy Potential Map*, U.S. DEP’T OF ENERGY (Nov. 29, 2005), [http://www.eia.doe.gov/emeu/rep/rpmap/rp\\_mountain.html](http://www.eia.doe.gov/emeu/rep/rpmap/rp_mountain.html) [hereinafter *Mountain Division Map*].

177. *See generally* ENERGY INFO. ADMIN., DEP’T OF ENERGY, ENERGY CONSUMPTION AND RENEWABLE ENERGY DEVELOPMENT POTENTIAL ON INDIAN LANDS 11–21 (Apr. 2000), available at <http://tonto.eia.doe.gov/FTPROOT/service/neaf0001.pdf>. [hereinafter *ENERGY CONSUMPTION*].

178. *See generally id.*

its Renewable Energy Potential map of the Mountain West, the U.S. Energy Information Administration identifies nearly every square mile of Idaho, Montana, Wyoming, Utah, Colorado, New Mexico, Arizona, and Nevada as having potential for either wind, solar, geothermal, or biomass development.<sup>179</sup>

As a result, many Indian reservations with pending unresolved reserved rights claims contain considerable renewable energy resources.<sup>180</sup> Development of renewable energy projects on these Indian reservations can serve the multiple purposes of reducing energy costs for tribal residents, providing tribes with a means of economic diversification, and helping the nation as a whole to achieve energy independence. The ideal location of reservations to tap into these renewable resources puts tribes in an excellent position to be at the forefront of renewable energy development.

### 1. Tribal Energy Independence

Despite sitting atop tremendous natural resources, a number of Indian tribes still lack energy-production capacity to meet the basic needs of the reservation.<sup>181</sup> In fact, a number of reservations still lack electricity and rely upon expensive and dirty diesel generators to meet the reservation's energy needs.<sup>182</sup> Often, tribes that are on the grid are subject to high power rates because of the long distances that electricity must travel to get to remote reservations.<sup>183</sup> The development of renewable energy projects would allow tribes to move toward energy independence as well as meet the basic energy needs of reservations.

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179. See Mountain Division Map, *supra* note 176.

180. See, e.g., ENERGY CONSUMPTION, *supra* note 177, at 14, fig.12 (showing the potential of high-concentrated solar power on the Walker River Paiute Reservation in Nevada, which is currently in the midst of ongoing water rights litigation, and the Navajo Nation, home of the dispute over the waters of the Little Colorado River); see also *id.* at 16, fig.14 (showing high potential for biomass and biofuels generation on the Klamath River Reservation, which is involved in an ongoing water rights adjudication). For additional information on the Walker River litigation, see *supra* note 117. For additional information on the status of the Little Colorado litigation, see Felicia Fonseca, *Navajo Lawmakers Approve Water Rights Settlement*, ASSOCIATED PRESS, Nov. 4, 2010, available at [http://hosted.ap.org/dynamic/stories/A/AZ\\_NAVAJO\\_WATER\\_RIGHTS\\_UTOL-?SITE=AP&SECTION=HOME&TEMPLATE=DEFAULT](http://hosted.ap.org/dynamic/stories/A/AZ_NAVAJO_WATER_RIGHTS_UTOL-?SITE=AP&SECTION=HOME&TEMPLATE=DEFAULT). For a succinct summary of the Klamath Basin dispute, see Carl Ullman, *Adjudicating Water Rights While Addressing Broad Resource Policy Issues: Fitting a Round Peg Into a Square Hole*, 2010 A.B.A. Sec. Environment, Energy, & Resources, [http://www.abanet.org/environ/programs/waterlaw/2010/bestpapers/CarlUllman\\_WaterLaw10.pdf](http://www.abanet.org/environ/programs/waterlaw/2010/bestpapers/CarlUllman_WaterLaw10.pdf) (presented at 28th Annual Water Law Conference, San Diego, Cal., Feb. 17–19).

181. ENERGY CONSUMPTION, *supra* note 177, at 1.

182. *Id.* at 39.

183. *Id.* at 11–38.

## 2. *The Tribal Energy Program*

Title XXVI of the Energy Policy Act of 1992, entitled “Indian Energy Resources,” established a federal program for the development of energy resources to foster energy self-sufficiency and economic development on reservations.<sup>184</sup> Section 2603 of the Act directed the Secretary of Energy, in consultation with the Secretary of the Interior, to provide grants and technical assistance for vertically integrated energy projects on Indian reservations, meaning that the energy is produced and consumed on the reservation.<sup>185</sup> The Act also established a financial-assistance program for tribes to develop energy efficiency and renewable energy projects on reservations.<sup>186</sup> Section 2606 of the Act makes funding available to both tribal governments and private persons working in cooperation with tribal governments.<sup>187</sup> Congress conditioned payment of funds on “evidence [of] coordination and cooperation with, and support from, local educational institutions and the affected local energy institutions.”<sup>188</sup> The DOE Federal Energy Management Program also has made funding available for renewable energy projects.<sup>189</sup>

Pursuant to Title XXVI, a considerable amount of funding currently exists to explore renewable-resource availability on Indian lands and to develop projects that put those resources to use.<sup>190</sup> DOE administers the Tribal Energy Program to provide financial and technical assistance to tribes to “promote[ ] tribal energy sufficiency, economic development, and employment through the use of renewable energy and energy efficiency technologies.”<sup>191</sup> Over the past 20 years, DOE has financed and provided technical assistance to a host of energy projects.<sup>192</sup> These have included installation of utility-grade wind turbines, photovoltaic systems, and various demonstration projects and feasibility stud-

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184. 25 U.S.C. § 3502 (2006); Steve Sargent & Ernest J. Chabot, *American Indian Reservations: A Showplace for Renewable Energy*, U.S. DEP’T OF ENERGY (Apr. 13–18, 1996), [http://apps1.eere.energy.gov/tribalenergy/report\\_reservations.cfm](http://apps1.eere.energy.gov/tribalenergy/report_reservations.cfm) (paper presented at the Ann. Conf. of the Am. Solar Energy Soc’y, Asheville, N.C.).

185. Energy Policy Act of 1992, Pub. L. No. 102-486, § 2603, 106 Stat. 2776 (1992).

186. *Id.* at § 2606(a).

187. *Id.*

188. *Id.* at § 2606(b).

189. Clarence D. Council, et al., *Using Renewable Energy on Native American Lands*, U.S. DEP’T OF ENERGY (June 16–21, 2000), [http://apps1.eere.energy.gov/tribalenergy/report\\_native\\_lands.cfm](http://apps1.eere.energy.gov/tribalenergy/report_native_lands.cfm) (paper presented at the Ann. Conf. of the Am. Solar Energy Soc’y, Madison, Wis.).

190. Energy Efficiency & Renewable Energy, *Tribal Energy Program*, U.S. DEP’T OF ENERGY, <http://apps1.eere.energy.gov/tribalenergy/about.cfm> (last visited Dec. 3, 2010).

191. *Id.*

192. ENERGY CONSUMPTION, *supra* note 177, at ch. 3.

ies.<sup>193</sup> Other sources of possible support for renewable energy development include the Administration of Native Americans, the Bureau of Indian Affairs, the Council of Energy Resource Tribes, Economic Development Administration, Indian Health Services, National Renewable Energy Laboratory, Office of Indian Programs of the U.S. Housing and Urban Development, and Sandia National Laboratories.<sup>194</sup>

### 3. Energy Export and Economic Development

While the movement toward energy independence is an important opportunity for tribes, the present political climate also offers tremendous opportunities for tribes to use their renewable resources to enter into the power-producer market and play an important role in regional and national energy planning. In its report to Congress, DOE identified the need for regionally integrated water and energy planning to ensure that sustainable supplies of both resources continue into the future.<sup>195</sup> As emphasized in the 2009 Senate energy bill, Indian tribes should participate in the ongoing dialogue regarding future transmission siting and production capacity to meet growing national needs.<sup>196</sup> The location of future transmission lines is not only tied to existing power-generation facilities but also planned future facilities, some of which could best be located on tribal lands.<sup>197</sup> It is critical that Indian tribes participate in these discussions to (1) promote economic development on tribal lands and (2) position reservations as key power producers in the emerging renewable energy market.

A number of such projects are already planned or underway. For example, DOE funded a feasibility analysis of a co-generation system at

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193. See *id.*; Clarence D. Council et al., *supra* note 189; Steve Sargent & Ernest J. Chabot, *supra* note 184.

194. N. ARIZONA UNIV., GENERATING ELECTRICITY FROM RENEWABLE RESOURCES IN INDIAN COUNTRY: RECOMMENDATIONS TO TRIBAL LEADERS FROM THE WESTERN REGIONAL AIR PARTNERSHIP 13 (July 2003), available at [http://www.wrapair.org/forums/ap2/projects/tribal\\_renew/Tribal\\_Renewables\\_Report\\_7-03.pdf](http://www.wrapair.org/forums/ap2/projects/tribal_renew/Tribal_Renewables_Report_7-03.pdf).

195. U.S. DEP'T OF ENERGY, *supra* note 17, at 49.

196. American Clean Energy Leadership Act of 2009, S.142, 111th Cong. § 216(c)(2)(B)(ii) (2009) (directing a to-be-created National Interstate Transmission System to "address how the utilities should coordinate with each other, States, Indian tribes, and other planning efforts in the applicable Interconnection to effectively develop an Interconnection-wide analysis to identify needed additions or modifications to high-priority national transmission projects. . . ."); see also U.S. DEP'T OF ENERGY & U.S. DEP'T OF THE INTERIOR, ENERGY POLICY ACT OF 2005, SECTION 1813 INDIAN LAND RIGHTS-OF-WAY STUDY 53-54 (May 2007), available at [http://teeic.anl.gov/documents/docs/EPAct2005\\_Section\\_1813\\_Final\\_Report.pdf](http://teeic.anl.gov/documents/docs/EPAct2005_Section_1813_Final_Report.pdf) (addressing compensation and tribal sovereignty issues regarding utility right-of-ways on Indian lands).

197. ENERGY CONSUMPTION, *supra* note 177, at ch. 3.

the White Mountain Apache Tribe's Fort Apache Timber Company lumber mill in northeastern Arizona.<sup>198</sup> A resource assessment performed on the site confirmed that an up-to 20 megawatt (MW) plant fueled from lumber mill and logging waste was feasible.<sup>199</sup> Discussions included the establishment of a tribally owned utility to allow power wheeling to non-tribal customers on the reservation.<sup>200</sup>

The Northwest Power Planning Council has studied the wind resources of the Blackfeet Tribe in Northwestern Montana and estimated that, after overcoming transmission restraints, an area of 3,250 square miles on the reservation could support up to 15,000 MW of generation.<sup>201</sup> In cooperation with private companies, the Tribe has installed a utility-grade wind turbine to assist with assessing the feasibility of a commercial wind farm.<sup>202</sup> The Devil's Lake Sioux and Turtle Mountain Chippewa Tribes in northern North Dakota and the Fort Peck Assiniboine and Sioux Tribes of northeastern Montana are also conducting wind-resource assessment to determine the potential for commercial wind-farm development.<sup>203</sup>

The Jemez Pueblo in northern New Mexico is on the verge of building the first utility-scale solar plant located on tribal lands in the United States.<sup>204</sup> The 30-acre site with 14,850 solar panels will produce 4 MW of power annually for sale to off-reservation users.<sup>205</sup> Government grants, loans, and tax credits will finance the project, which is expected to cost \$22 million.<sup>206</sup> In light of potential projects such as these, and the identified need for increased transmission capacity, if these projects become reality, tribes should participate in energy planning, particularly where energy and water planning intersect.

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198. GREG RETZLAFF, LEONARD GOLD & AMY T. MIGNELLA, U.S. DEP'T OF ENERGY, WHITE MOUNTAIN APACHE TRIBE BIOMASS POWER GENERATION FEASIBILITY ASSESSMENT (Nov. 2003), available at <http://apps1.eere.energy.gov/tribalenergy/pdfs/whitemountainapache05final.pdf> (DOE award number DE-FC36-02GO12109, A000).

199. *Id.* at 4.

200. *Id.* at 3, 33–34.

201. BLACKFEET RENEWABLE ENERGY DEP'T, BLACKFEET NATION ENERGY ORGANIZATION DEVELOPMENT PROJECT FINAL REPORT 4 (June 15, 2008), available at <http://apps1.eere.energy.gov/tribalenergy/pdfs/blackfeet06final.pdf>.

202. *Id.* at 5.

203. STEVE SARGENT & ERNEST J. CHABOT *supra* note 184.

204. Susan Montoya Bryan, *Indian Tribe Hopes to Profit from Solar Project*, MSNBC, (Jan. 12, 2010, 7:01 PM), [http://www.msnbc.msn.com/id/34831133/ns/us\\_news-environment/](http://www.msnbc.msn.com/id/34831133/ns/us_news-environment/).

205. *Id.*

206. *Id.*

#### 4. Tribal Flexibility in Clean Air Act Compliance

The 1990 amendments to the Clean Air Act added three new provisions specifically directed toward Indian reservations.<sup>207</sup> Under these amendments, Congress (1) authorized the EPA administrator to treat tribes as states for the purpose of implementing the Clean Air Act, (2) defined the eligibility criteria for tribes to obtain such treatment, and (3) directed the EPA administrator to promulgate regulations that delineate which specific provisions of the Clean Air Act are appropriate for tribes to be treated as states.<sup>208</sup>

In 1998, EPA established the necessary framework in regulations commonly known as the Tribal Authority Rule (TAR).<sup>209</sup> According to TAR, eligible tribes can implement Clean Air Act programs to protect air resources “within the exterior boundaries of the reservation or other areas within the tribe’s jurisdiction,” which includes non-Indian in-holdings.<sup>210</sup> Notably, TAR exempts tribes from statutory deadlines and the sanctions imposed for failure to meet those deadlines.<sup>211</sup> Likewise, TAR provides flexibility to tribes in the development of air quality programs.<sup>212</sup> Rather than require any action by tribes to implement the Clean Air Act, TAR allows tribes to incrementally, through incentives and available grants, craft their program to manage air quality under the Clean Air Act.<sup>213</sup>

Given this flexibility, tribes are in a unique position within the new energy economy. Indian power projects may not be subject to an emissions cap yet may be able to participate in the market-trading program by selling offset credits from on-reservation renewable energy production.<sup>214</sup> Financial and technical support available for the development of renewable projects on reservations enhances this role. Because certain grants, loans, and other financial incentives are available only to Indian tribes, the marginal cost of greenhouse gas reduction may be less compared to their non-Indian counterparts.<sup>215</sup> As a result, emerging carbon markets may be particularly advantageous to tribes.

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207. 42 U.S.C. § 7601(d) (2006).

208. *Id.*

209. Indian Tribes: Air Quality Planning and Management, 63 Fed. Reg. 7254 (Feb. 12, 1998) (codified at 40 C.F.R. pt. 49).

210. 42 U.S.C. § 7601(d)(2)(B) (2006).

211. 40 C.F.R. § 49.4 (2010).

212. *Id.*

213. *Id.*

214. ENERGY CONSUMPTION, *supra* note 177.

215. Many factors contribute to the respective marginal costs of renewable energy development for tribes versus private entities that must be considered when analyzing the economic viability of a project. These include the availability of grants, loans, bonds, and

#### D. The Intersection of Renewable Energy Development and Disputed Federal Reserved Water Rights

With the potential for renewable energy development on tribal lands, unresolved reserved rights claims pose a risk of lost opportunities. Tribes and others seeking to develop renewable energy projects must first have certainty that the water sources needed for such projects are available and will not diminish or disappear in the future. This is particularly important for renewable energy projects that are water-intensive, such as solar thermal, biomass, and geothermal.

The resolution of reserved rights claims has allowed a number of tribes to proceed with development plans for commercial-scale renewable energy projects where lack of water resources would have otherwise stymied them. For example, the Jicarilla Apache Tribe of northern New Mexico is in the midst of developing a hydroelectric project facilitated by the settlement of its reserved rights claims to the waters of the Navajo River and the San Juan-Chama reclamation project.<sup>216</sup>

Under the Jicarilla Apache Tribe Water Settlement Act of 1992, the Tribe is now entitled to approximately 40,000 acre-feet of water rights (33,500 acre-feet more than it had before the settlement), which the Tribe intends to use to generate electric power.<sup>217</sup> In regards to the Jicarilla Apache's proposed hydroelectric project, DOE described how the settlement of the Tribe's reserved rights claims was a prerequisite to the Tribe's ability to forge into the renewable energy field:

The Title XXVI analysis of the potential for development of hydroelectric generation capacity necessarily begins with a consideration of the potential water resource that could be used to generate electricity . . . The right [under the settlement act], available in perpetuity to the tribe, provides a resource that can be exploited in multiple uses before its consumption. By strategic development, the tribe can use its

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tax credits. See Michael L. Connolly, *Commercial Scale Wind Industry on the Campo Indian Reservation*, 23 NAT. RESOURCES & ENV'T 25, 25–28 (Summer 2008) (noting that because production tax credits and accelerated depreciation are not available to Indian tribes, tribal ownership of energy projects may not be economical); MARK SHAHINIAN, *The Tax Man Cometh Not: How the Non-Transferability of Tax Credits Harms Indian Tribes*, 32 AM. INDIAN L. REV. 267, 277 (2007) (positing that the lack of a production tax credit for tribes has stalled the development of wind-energy projects on reservations).

216. See Energy Efficiency and Renewable Energy, *Project Description, Jicarilla Apache Nation 1995 Project: Assessing the Feasibility of a Jicarilla Apache Tribe Hydroelectric Facility*, U.S. DEP'T OF ENERGY, [http://apps1.eere.energy.gov/tribalenergy/projects\\_detail.cfm/project\\_id=10#status](http://apps1.eere.energy.gov/tribalenergy/projects_detail.cfm/project_id=10#status) (last updated May 8, 2008).

217. *Id.*; see also Jicarilla Apache Tribe Water Rights Settlement Act, Pub. L. No. 102-441, § 6, 106 Stat. 2237 § 6 (1992).



water to generate electricity before it is committed to reservation and/or downstream uses.<sup>218</sup>

After the resolution of its water rights claims, the Tribe concluded it could best use its financial resources to build water-conveyance and storage facilities that would suit the needs of both its water demands and the proposed energy project.<sup>219</sup>

Other tribes on the verge of approved water rights settlements are looking into vertical integration and co-generation projects with their existing resource-extraction operations. For example, the Crow Tribe of southeast Montana owns mineral rights to coal, which a private company currently mines under a royalty agreement with the Tribe.<sup>220</sup> The Tribe is examining the feasibility of a 260 MW mine-mouth co-generation plant that could also involve the use of waste heat for the production of ethanol.<sup>221</sup> In 2009, the Crow Tribe Water Rights Settlement Act was introduced in the House of Representatives to ratify the water rights compact between the Crow Tribe and the state of Montana.<sup>222</sup> The proposed legislation gives the Tribe the exclusive right to develop and market power generation from an existing dam.<sup>223</sup> As these settlements exemplify, the resolution of *Winters* claims is creating opportunities for energy development that would position tribes well in the emerging renewable energy economy.

## V. CONCLUSION

In the last century since the Supreme Court first introduced the *Winters* doctrine, little progress has been made in delineating the scope of federal reserved rights. Questions persist regarding the quantification, uses, and priority of reserved rights claims such that many uncertainties still loom over title to water rights throughout the West. The sheer size of water rights litigation suggests that no increased certainty in the scope of the *Winters* doctrine is forthcoming. Given the difficult procedural and

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218. See Energy Efficiency and Renewable Energy, *supra* note 216.

219. *Id.*

220. STEVE SARGENT & ERNEST J. CHABOT, *supra* note 184 (also describing a vertical-integration project planned by the Colville Confederated Tribes of eastern Washington that would include natural-gas distribution, a combustion turbine-based co-generation plant with up to 450 MW capacity, steam sales, and an industrial park using local raw materials).

221. *Reporter's Transcript of Proceedings, Indian Energy Solution Conference, Global Warming, Climate Change, and Global Opportunities*, COUNCIL OF ENERGY RESOURCE TRIBES, 24–26 (Aug. 5, 2008), <http://www.certreearth.com/pdfs/Presentations/2008/GLOBAL WARMINGCLIMATECHANGEANDCARBONOPPORTUNITIESTAM.pdf>.

222. Crow Tribe Water Rights Settlement Act of 2009, H.R. 845, 111th Cong. (2009).

223. *Id.*

case-management hurdles that prevent the imminent disposition of these disputes on their merits, little hope exists for any authoritative judicial resolution to some of the pressing legal questions surrounding the *Winters* doctrine. In the face of such obstacles, water rights settlement efforts are likely the most promising means of resolving reserved rights claims.

During the time that the judicial resolution of many *Winters* claims has languished, the field of renewable energy development has exploded. With the growing market incentives and political push for the development of renewable energy sources, Indian tribes are poised to avail themselves of opportunities to increase their energy independence and diversify their economic base. The drive for comprehensive energy and water planning, increased transmission capacity, and low-carbon electricity production suggests that Indian tribes should participate in the national and regional dialogue and explore opportunities to play a role in emerging carbon markets. Because water supply and energy production are interdependent, meaningful Indian participation in the new energy economy will benefit from the resolution of *Winters* claims.

