

Endnotes

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- ¹ Joseph L. Sax, *Heritage Preservation as a Public Duty: The Abbé Grégoire and the Origins of an Idea*, 88 MICH. L. REV. 1142, 1143 (1990).
- ² *Id.* (explaining the unreliability of heritage site preservation).
- ³ *See id.* at 1150 (explaining that historically it was not customary to protect or preserve old buildings and religious structures).
- ⁴ *See id.* at 1143 (indicating that interest in preserving heritage sites is a newer idea); *see also* Loez Velpaus, Ana Pereira Roders & Johann J Swart, *Assessing Amsterdam's Heritage Management Framework* (IAIA13 Conference Proceedings: Impact Assessment the Next Generation, 2013) 1, https://www.researchgate.net/publication/260124393_Assessing_Amsterdam's_heritage_management_framework (explaining the difficulties in balancing conservation of World Heritage sites within a continuously changing urban context).
- ⁵ *See* Sax, *supra* note 1, at 1154-55 (revealing the government's struggle in deciding whether to favor preservation or destruction of art and historical artifacts as well as Grégoire's new propositions regarding the value of preservation).
- ⁶ *See id.* at 1152-53 (explaining the people's desire to move away from many values held before the revolution and interest in using items from that time to fund new government entities).
- ⁷ *Id.* at 1152 (revealing the increased value the public came to see in cultural artifacts under Grégoire's leadership).
- ⁸ *Id.* (explaining the new Monuments Commission and its duty of preservation).
- ⁹ *See generally*, *Urban Health*, WORLD HEALTH ORG., https://www.who.int/health-topics/urban-health#tab=tab_1 (last visited Mar. 26, 2022) (providing information about the changing global urban population).
- ¹⁰ *Id.*
- ¹¹ GETTY CONSERVATION INST., *Historic Urban Environment Conservation Challenges and Priorities for Action Meeting Report 4* (2009).
- ¹² *Id.*
- ¹³ *Id.*
- ¹⁴ *See* Heike C. Alberts & Helen D. Hazen, *Maintaining Authenticity and Integrity at Cultural World Heritage Sites*, 100 GEOGRAPHICAL REV. 56, 56-57 (2010).
- ¹⁵ *World Heritage*, UNESCO, <https://whc.unesco.org/en/about/> (last visited Mar. 18, 2022).
- ¹⁶ *The Criteria for Selection*, UNESCO, <https://whc.unesco.org/en/criteria/> (last visited Mar. 19, 2022).
- ¹⁷ Alberts & Hazen, *supra* note 14, at 59.
- ¹⁸ *Id.* at 58.
- ¹⁹ G.A. Res. 17/70 *Transforming our world: the 2030 Agenda for Sustainable Development*, UN, (Oct. 21, 2015) (announcing the seventeen 2022 Sustainable Development Goals of the United Nations General Assembly that seek to balance the economic, social, and environmental dimensions of sustainable development).
- ²⁰ *Id.*
- ²¹ Hereinafter Sustainable Development Goals, *supra* note 19.
- ²² Federica Appendino, *Balancing Heritage Conservation and Sustainable Development – The Case of Bordeaux*, IOP CONF. SERIES: MATERIALS SCI. & ENG'G, OCT. 2017, at 2 (2017).
- ²³ UNESCO, *Recommendation on the Historic Urban Landscape*, 1 (Nov. 10, 2011).
- ²⁴ UNESCO, *Historic Urban Landscape*, <http://www.historicurbanlandscape.com/index.php?classid=5353&id=20&t=show> (last visited May 16, 2022).
- ²⁵ UNESCO, *supra* note 23 at 1.
- ²⁶ *Id.*
- ²⁷ *Id.*; UNESCO, UNESCO, *Historic Urban Landscape*, <http://historicurbanlandscape.com/index.php?classid=5354&id=22&t=show> (last visited May 16, 2022).
- ²⁸ Loez Velpaus, Ana R. Pereira Roders & Bernard J.F. Colenbrander, *Urban Heritage: Putting the Past into the Future*, 4 HIST. ENV'T 3, 9 (2013) ("Amsterdam is truly a historic urban landscape . . . [t]he management plan also includes the historic urban landscape approach.").
- ²⁹ G.A. Res. 71/256, *New Urban Agenda* (Dec. 23, 2016).
- ³⁰ Nancy Duxbury, Jyoti Hosagrahar, & Jordi Pascual, *Why Must Culture Be at the Heart of Sustainable Urban Development?*, UNITED CITIES & LOCAL GOV'TS, Jan. 2016, at 6.
- ³¹ G.A. Res. 71/256, *supra* note at 29.
- ³² *Id.*
- ³³ *Istanbul*, WORLD CITIES CULTURE FORUM, <http://www.worldcitiescultureforum.com/cities/istanbul> (last visited Apr. 18, 2022).
- ³⁴ Jenna Scatena, *Climate Change is Going to be Gross*, THE ATLANTIC (Dec. 18, 2021), <https://www.theatlantic.com/science/archive/2021/12/turkey-sea-snot-climate-change/620756/> (exposing an outbreak of sea sludge called marine mucilage, aka "sea snot," in the Sea of Marmara as one of many area-wide manifestations of the effects of climate change).
- ³⁵ HURRIYET DAILY NEWS, *Istanbul's Bosphorus under risk due to global climate change*, (Apr. 9, 2021), <https://www.hurriyetdailynews.com/istanbuls-bosphorus-under-risk-due-to-global-climate-change-163795>.
- ³⁶ *See* TODAY'S ZAMAN, *Marmaray completion delayed to 2013, cost increases by \$500 mln*, (Dec. 30, 2009), <https://web.archive.org/web/20121005033412/http://www.todayszaman.com/tz-web/news-196986-100-marmaray-completion-delayed-to-2013-cost-increases-by-500-mln.html>.
- ³⁷ *Id.*
- ³⁸ Perhaps ironically, "Yenikapı" translates to "New Gate."
- ³⁹ Elif Batuman, *The Big Dig*, THE NEW YORKER (Aug. 31, 2015), <https://www.newyorker.com/magazine/2015/08/08/31/the-big-dig>.
- ⁴⁰ *Id.*
- ⁴¹ Claire Berlinski, *Can't Go Back to Constantinople*, CITY J. (2011), <https://www.city-journal.org/html/can-t-go-back-constantinople-13383.html>; *see also* Melisa Pesoa, Mark Warren, and Joaquín Sabaté, *Preservation through Transformation: Amsterdam through the Lens of Barcelona*. In J. Nijman (Ed.), *Amsterdam's Canal District: Origins, Evolution, and Future Prospects*, University of Toronto Press, 148, (2020), <https://www.jstor.org/stable/10.3138/j.ctv16kkwqx.14>, ("noting that Barcelona's "historic buildings typically survived not because there were valued and protected, but because they were ignored.").
- ⁴² Pun not intended.
- ⁴³ *See* Ömer Erbil, *Ruins from Neolithic age found in Istanbul*, HURRIYET DAILY NEWS (Jan. 11, 2013, 01: 00 AM), <https://www.hurriyetdailynews.com/ruins-from-neolithic-age-found-in-istanbul-38775> (according to Culture and Tourism Provincial Manager Emre Bilgili, the discovery of the excavations was a "cause for great joy," and that a new museum was required for the Neolithic period discoveries).
- ⁴⁴ Berlinski, *supra* note 38.
- ⁴⁵ *Marmaray and metro archaeological findings may take Istanbul's history back 6,500 years*, HURRIYET DAILY NEWS (Dec. 2, 2013, 01:00 AM), <https://www.hurriyetdailynews.com/marmaray-and-metro-archaeological-findings-may-take-istanbuls-history-back-6500-years-58813>.
- ⁴⁶ *See* Zeynep Gunay, *Conservation versus Regeneration?: Case of European Capital of Culture 2010 Istanbul*, EUR. PLAN. STUD., 1173,1174, 1184 (2010) (concluding that "[i]n a world marked by globalization, cultural heritage has become one of the most powerful instruments for gaining a competitive advantage through harnessing the distinctiveness of cities, and it has helped in generating social and economic discourses leading to new dynamics of regeneration for the last two decades. However, as we can see in Istanbul case, the problem is due to the creation of a balance between conservation of the values of cultural heritage among market-driven regeneration activities.").
- ⁴⁷ *Id.* at 1174.
- ⁴⁸ *Id.*
- ⁴⁹ Paul Benjamin Osterlund, *Destroying Istanbul to 'Restore' It*, THE ATLANTIC (Mar. 21, 2019), <https://www.theatlantic.com/international/archive/2019/03/modern-istanbul-destroy-restore/585373/>.
- ⁵⁰ *Id.* (detailing examples of how many Istanbulites were horrified by the restorations).
- ⁵¹ *Id.*
- ⁵² *History by Year*, INSTITUTE OF NAUTICAL ARCHAEOLOGY, <https://nauticalarch.org/history/> (last visited Apr. 20, 2022) (describing the creation of the center in Bodrum in 1978).

- ⁵³ Janet Blake, *Chapter 11: Turkey*, in *LEGAL PROTECTION OF THE UNDERWATER CULTURAL HERITAGE: NATIONAL AND INTERNATIONAL PERSPECTIVES* 169, 171 (Sarah Dromgoole ed., 1999).
- ⁵⁴ *Id.* at 171–72.
- ⁵⁵ *See id.* at 171; *see also* Osterlund, *supra* note 47.
- ⁵⁶ *See* Blake, *supra* note 51, at 173–76.
- ⁵⁷ *Id.* at 172.
- ⁵⁸ *Id.*
- ⁵⁹ *Id.* at 173, 175.
- ⁶⁰ *Id.* at 177.
- ⁶¹ *Id.* at 179.
- ⁶² *See id.* at 179–80.
- ⁶³ *Id.* at 178.
- ⁶⁴ *Id.* (identifying that this concept has been most utilized in the US but has been used in places like Italy as well).
- ⁶⁵ *Id.*
- ⁶⁶ *Id.*
- ⁶⁷ *Yenikapi Archeology Excavations Shed Light on the History of Istanbul*, REP. OF TURK. GOVERNORSHIP OF ISTANBUL (Mar. 3, 2020), <http://en.istanbul.gov.tr/yenikapi-archeology-excavations-shed-light-on-the-history-of-istanbul>.
- ⁶⁸ *Id.*
- ⁶⁹ *See id.*
- ⁷⁰ *But see* Katherine D. Mitchell, *Cultural Heritage and Rising Seas: Water Management, Governance, and Heritage in Venice and Amsterdam*, UNIV. VT. HONORS COLL. SENIOR THESIS 1, 80 (2017) (comparing to Turkey’s concerns, Amsterdam also faces issues with water threatening cultural heritage, and has had to seek similar mechanisms of drainage and flood control to manage and preserve the city).
- ⁷¹ Nijman, *supra* note 38, at 5.
- ⁷² *Seventeenth-Century Canal Ring Area of Amsterdam inside the Singelgracht*, UNESCO, <https://whc.unesco.org/en/list/1349/> (last visited Apr. 20, 2022); *see* Katja Brokke, *Amsterdam has been collapsing for years. Now it’s paying the price*, CNN Travel (Aug. 22, 2020), <https://edition.cnn.com/travel/article/amsterdam-collapsing/index.html>.
- ⁷³ *See* Nijman, *supra* note 38, at 8.
- ⁷⁴ Freek Schmidt, *The Architectural Essence of the Canal District: Past and Present*, in *AMSTERDAM’S CANAL DISTRICT: ORIGINS, EVOLUTION, AND FUTURE PROSPECTS* 101, 110 (Jan Nijman ed., 2020).
- ⁷⁵ *Id.*
- ⁷⁶ *Id.*
- ⁷⁷ *Id.* (increasing participation was said to have influenced the appearance of the Canal District as seen today).
- ⁷⁸ Len De Klerk, *The Canal District: A Continuing History of Modern Planning*, in *AMSTERDAM’S CANAL DISTRICT: ORIGINS, EVOLUTION, AND FUTURE PROSPECTS* 119, 129 (Jan Nijman ed., 2020).
- ⁷⁹ Melisa Pesoa, Mark Warren & Joaquín Sabaté, *Preservation through Transformation: Amsterdam through the Lens of Barcelona*, in *AMSTERDAM’S CANAL DISTRICT: ORIGINS, EVOLUTION, AND FUTURE PROSPECTS* 154, 156 (Jan Nijman ed., 2020).
- ⁸⁰ *See* Jon Henley, *Overtourism in Europe’s historic cities sparks backlash*, THE GUARDIAN (Jan. 25, 2020), <https://www.theguardian.com/world/2020/jan/25/overtourism-in-europe-historic-cities-sparks-backlash> (describing how Amsterdam residents are protesting the number of tourists visiting, claiming it affects the city’s “livability” and forcing city hall officials to take action); *id.*
- ⁸¹ Melisa Pesoa, Mark Warren & Joaquín Sabaté, *supra* note 77, at 154.
- ⁸² *Id.*
- ⁸³ Katja Lubina, *Netherlands*, in *THE IMPACT OF UNIFORM LAWS ON THE PROTECTION OF CULTURAL HERITAGE AND THE PRESERVATION OF CULTURAL HERITAGE IN THE 21ST CENTURY* 563, 580 (Toshiyuki Kono ed., 2010).
- ⁸⁴ *Id.*
- ⁸⁵ Loez Veldpaus, Ana Pereira Roders & Johan J Swart, *Assessing Amsterdam’s Heritage Management Framework* INT’L ASS’N FOR IMPACT ASSESSMENT 1, 1 (Jan. 2013), https://www.researchgate.net/publication/260124393_Assessing_Amsterdam’s_heritage_management_framework. *See also* UNESCO, *supra* note 70.
- ⁸⁶ Lilly Bianco, *The Confluence of Social Equity and Historic Preservation: A Look at Amsterdam*, M. GROUP (Apr. 2, 2015), <https://www.m-group.us/mlab/blog/2015/4/2/the-confluence-of-social-equity-and-historic-preservation-a-look-at-amsterdam>.
- ⁸⁷ *See id.*
- ⁸⁸ *Id.*
- ⁸⁹ *Case Studies in Heritage Regeneration*, CULTURAL HERITAGE FINANCE ALLIANCE, https://issuu.com/bonnieburnham/docs/case_studies_in_heritage_regeneration (last accessed May 16, 2022).
- ⁹⁰ *Id.*
- ⁹¹ *Id.*
- ⁹² *Id.*
- ⁹³ *Id.*
- ⁹⁴ *Id.*
- ⁹⁵ *Id.*
- ⁹⁶ *See generally id.* (noting that these initiatives “have made diverse contributions to the local environment . . .”).
- ⁹⁷ Lilly Bianco, *supra* note 86.
- ⁹⁸ *Bordeaux, Port of the Moon*, UNESCO, <https://whc.unesco.org/en/list/1256/> (last visited Mar. 10, 2020).
- ⁹⁹ *See* Appendino, *supra* note 22, at 3.
- ¹⁰⁰ *Id.* at 5–6.
- ¹⁰¹ *Id.*
- ¹⁰² *See generally id.* at 4–5 (detailing the unique urban heritage and management).
- ¹⁰³ *See* Getty Institute, *supra* note 11, at 3 (listing that of the first two of four principles, a strong legislative framework with enforcement mechanisms is crucial).
- ¹⁰⁴ Appendino, *supra* note 22, at 7.
- ¹⁰⁵ *Id.*
- ¹⁰⁶ *Id.*
- ¹⁰⁷ *Id.*
- ¹⁰⁸ *See generally* *Urban Renewal In Service of Its Citizens: Interview with Marik Fetouh, Deputy Mayor of Bordeaux*, NOTES DE SEGURETAT BLOG (Nov. 6, 2019), <https://notesdeseguretat.blog.gencat.cat/2019/11/06/marik-fetouh-deputy-mayor-of-bordeaux/> (interviewing the Mayor on urban regeneration in Bordeaux and serving the living and economic needs of its citizens).
- ¹⁰⁹ Bordeaux Métropole Food Policy Council: Bordeaux Métropole Sustainable Food Governance Advisory Council, *Governance-Bordeaux*, https://www.milanurbanfoodpolicypact.org/wp-content/uploads/2020/12/GOV-Bordeaux_2019.pdf (last accessed May 16, 2022).
- ¹¹⁰ *Id.*

³⁵ *Frequently Asked Questions*, *supra* note 30.

³⁶ *Glen Canyon Dam: Current Status*, U.S. BUREAU OF RECLAMATION (May 3, 2022), <https://www.usbr.gov/uc/water/crsp/cs/gcd.html>.

³⁷ See Lindsay Fendt, *Avoiding Lake Powell's Day Zero*, WATER EDUCATION COLORADO (Nov. 20, 2019), <https://www.watereducationcolorado.org/publications-and-radio/headwaters-magazine/fall-2019-contingency-plan/avoiding-lake-powells-day-zero/> (“With the [Upper Basin Drought Contingency Plan’s] signing in May 2019, [Colorado] and its neighboring upper Colorado River Basin states of New Mexico, Utah and Wyoming were granted the ability to bank stored water in Lake Powell and other upper basin reservoirs in case of a future water crisis—but only if the states agree on an upper basin demand management program. Getting all the parties on the Colorado River to agree to that so-called ‘drought pool’ in Lake Powell was difficult, but designing the demand management program to get water into the pool will be much harder.”).

³⁸ See DEP’T OF INTERIOR, U.S. BUREAU OF RECLAMATION, COLORADO RIVER SYSTEM CONSUMPTIVE USES AND LOSSES REPORT, 1981–1985, 14, 18–22 (1991).

³⁹ DAVID OWEN, *WHERE THE WATER GOES: LIFE AND DEATH ALONG THE COLORADO RIVER* 22 (2017).

⁴⁰ U.S. BUREAU OF RECLAMATION, REVIEW OF THE COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES AND COORDINATED OPERATIONS FOR LAKE POWELL AND LAKE MEAD 15 (2020) (summarizing primary factors influencing Lake Powell and Lake Mead conditions).

⁴¹ ALTERNATIVE MANAGEMENT PARADIGMS, *supra* note 2, at 114 (warning likely lower inflows and/or any increases in Upper Basin consumptive uses will result in a difficult basin-wide reckoning).

⁴² CHARLES V. STERN & PERVAZE A. SHEIKH, CONG. RSCH. SERV., R45546, MANAGEMENT OF THE COLORADO RIVER: WATER ALLOCATIONS, DROUGHT, AND THE FEDERAL ROLE 15 (2020), <https://crsreports.congress.gov/product/pdf/R/R45546>.

⁴³ *Id.* at 15–16.

⁴⁴ COLO. RIVER RSCH. GROUP, A LOOK AT THE INTERIM GUIDELINES AT THEIR MID-POINT: HOW ARE WE DOING? (2015).

⁴⁵ Letters from the States of Colorado, New Mexico, Utah, and Wyoming, Governor’s Representatives on Colorado River Operations to Secretary of the Interior and Lower Division State Representatives (Oct. 7, 2004), <https://perma.cc/5DW4-7EZ4> (outlining the Governor’s Representatives position that the Upper Basin has no obligation under Article III(c) of the Compact).

⁴⁶ U.S. DEP’T OF THE INTERIOR, COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES AND COORDINATED OPERATIONS FOR LAKE POWELL AND LAKE MEAD, 73 Fed. Reg. 19,873, 19,873 (Apr. 11, 2008) [hereinafter 2007 INTERIM GUIDELINES].

⁴⁷ *Id.* at 19,873–74 (detailing that the Final Environmental Impact Statement . . . dated October 2007 . . . was prepared pursuant to the National Environmental Policy Act of 1969 . . . the Council on Environmental Quality’s Regulations for implementing the Procedural Provisions of NEPA . . . Department of Interior Policies, and Reclamation’s NEPA Handbook).

⁴⁸ Ramsey L. Kropf, Karen M. Kwon & Colby N. Pellegrino, *Planning in the Colorado River Basin—An Ounce of Prevention: Does Proactive Action in the Colorado River Basin Equal a Pound of Cure?*, 63 ROCKY MT. MIN. L. INST. 8, 8.01(2) (2017).

⁴⁹ 2007 INTERIM GUIDELINES, *supra* note 46.

⁵⁰ 2007 INTERIM GUIDELINES, *supra* note 46, at 19,886–87.

⁵¹ *Id.* at 19,886.

⁵² *Id.*

⁵³ *Id.* at 19,886–87.

⁵⁴ *Id.* at 19,887.

⁵⁵ *Id.*

⁵⁶ *Id.* (noting exceptions to the one-time five percent fee for System Efficiency ICS and certain Extraordinary Conservation ICS).

⁵⁷ *Id.* (indicating the three percent evaporation loss deduction will not apply in water years where the Secretary of Interior has determined there is a Shortage Condition).

⁵⁸ *Id.* at 19,875 (“A ‘Surplus Condition’ exists when the Secretary determines that sufficient mainstream water is available for release to satisfy consumptive use in the Lower Division states in excess of 7.5 maf annually.”).

⁵⁹ *Id.* (“A ‘Normal Condition’ exists when the Secretary determines that sufficient mainstream water is available to satisfy 7.5 million acre-feet (maf) of annual consumptive use in the Lower Division states . . .”).

⁶⁰ *Id.* at 19,887 (stating that contractors can only receive annual amounts up to: 400,000 acre-feet for California contractors; 125,000 acre-feet for Nevada contractors; and 100,000 acre-feet for Arizona contractors).

⁶¹ See generally, *Agreement Concerning Colorado River Drought Contingency Management and Operations*, U.S. BUREAU OF RECLAMATION (2019), <https://www.usbr.gov/dcp/docs/final/Companion-Agreement-Final.pdf>.

⁶² *Id.*

⁶³ U.S. BUREAU OF RECLAMATION, AGREEMENT FOR DROUGHT RESPONSE OPERATIONS AT THE INITIAL UNITS OF THE COLORADO RIVER STORAGE PROJECT ACT (2019), <https://www.usbr.gov/dcp/docs/final/Attachment-A1-Drought-Response%20Operations-Agreement-Final.pdf>, [hereinafter UPPER BASIN INITIAL UNIT OPERATIONS AGREEMENT]; U.S. BUREAU OF RECLAMATION, AGREEMENT REGARDING STORAGE AT COLORADO RIVER STORAGE PROJECT ACT RESERVOIRS UNDER AN UPPER BASIN DEMAND MANAGEMENT PROGRAM (2019), <https://www.usbr.gov/dcp/docs/final/Attachment-A2-Drought-Management-Storage-Agreement-Final.pdf>, [hereinafter UPPER BASIN DCP DMP]; U.S. BUREAU OF RECLAMATION, LOWER BASIN DROUGHT CONTINGENCY PLAN AGREEMENT (2019), <https://www.usbr.gov/dcp/docs/final/Attachment-B-LB-DCP-Agreement-Final.pdf>, [hereinafter LOWER BASIN DCP].

⁶⁴ U.S. BUREAU OF RECLAMATION, LOWER BASIN DROUGHT CONTINGENCY OPERATIONS 9 (2019), <https://www.usbr.gov/dcp/docs/final/Attachment-B-Exhibit-1-LB-Drought-Operations.pdf> [hereinafter LOWER BASIN DCP EXHIBIT 1] (discussing Section IV: Incentives for Enhanced Creation of Intentionally Created Surplus Benefitting Lake Mead).

⁶⁵ *Colorado River Drought Contingency Planning*, UPPER COLO. RIVER COMM’N, <http://www.ucrcommission.com/tahado-river-drought-contingency-planning> (last visited Apr. 17, 2022). See generally UPPER BASIN DCP DMP, *supra* note 63, at 1–2; UPPER BASIN INITIAL UNIT OPERATIONS AGREEMENT, *supra* note 63, at 1–2.

⁶⁶ See UPPER BASIN DCP DMP, *supra* note 63, at 4.

⁶⁷ *Id.*

⁶⁸ See Luke Runyon, *Lake Powell—Nation’s Second-Largest Reservoir—Hits Record Low*, KPBS (July 27, 2021, 3:00 AM), <https://www.kpbs.org/news/2021/jul/27/lake-powell-largest-reservoir-record-low/> (“None of the Upper Basin states has committed to fully implementing a plan to rein in demands on the river’s water in order to fill Lake Powell with conserved water. The plan remains in an investigatory phase.”).

⁶⁹ See LAWRENCE J. MACDONNELL & ANNE J. CASTLE, UNIV. OF COLO. L. SCH., SHEPHERDING APPROPRIATED WATER WITHIN COLORADO AND TO LAKE POWELL FOR COLORADO RIVER COMPACT SECURITY 2 (2017), <https://www.getches-wilkinson-center.cu.law/wp-content/uploads/2018/02/Shepherding-white-paper-8-29-17.pdf> (“Water shepherding . . . refers to the delivery of a specified volume of conserved consumptive use water from its original place of storage or use to a downstream location without diminishment by other users.”).

⁷⁰ See *Flaming Gorge Unit*, U.S. BUREAU OF RECLAMATION, <https://www.usbr.gov/uc/rm/crsp/fg/index.html> (last updated Aug. 19, 2021).

⁷¹ *Id.*

⁷² *40-Day Datasets: Flaming Gorge Reservoir*, U.S. BUREAU OF RECLAMATION, <https://www.usbr.gov/rsvrWater/rsv40Day.html?siteid=917&reservoirtype=Reservoir> (Website only displays last 40 days of data. At the time of writing, Mar. 12, 2021, the water capacity was 3,149,501 acre-feet of water).

⁷³ *Flaming Gorge Unit: Operations*, U.S. BUREAU OF RECLAMATION, <https://www.usbr.gov/uc/rm/crsp/fg/index.html> (last updated Aug. 19, 2021).

⁷⁴ From a historical perspective, utilizing the Reservoir as a water bank rather than Lake Powell aligns with John Wesley Powell’s vision of water storage in the arid West. After his various expeditions of the West and the Colorado River region, Powell indicated that for storing water in the West, “[r]eservoirs may be constructed near the sources of the streams and the waters held in the upper valleys. . . .” of the Basin. Notably, Powell continued by stating that storing Western water “in the lower region [of the Basin] is somewhat wasteful of water, as the evaporation is greater than above, and the pond being more or less shallow a greater proportional surface for evaporation is presented.” J.W. POWELL, REPORT ON THE LANDS OF THE ARID REGION OF THE UNITED STATES WITH A MORE DETAILED

ACCOUNT OF THE LAND OF UTAH WITH MAPS 12–13 (1879), <https://pubs.usgs.gov/unnumbered/70039240/report.pdf>.

⁷⁵ Utah Code Ann. § 73-3-1 (West 2021).

⁷⁶ Utah Code Ann. § 73-3-1(5)(a) (West 2021) (“Between appropriators, the one first in time is first in rights.”).

⁷⁷ *Id.* § 73-1-3 (West 2021) (“Beneficial use shall be the basis, the measure and the limit of all rights to the use of water in this state.”).

⁷⁸ See generally Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENVTL. L. 919, 961 (1998) (“[A]s to existing [water] users, [administrative water] agencies play a largely passive role. They do not seek out wasteful practices for active enforcement. Occasionally, particularly egregious practices may be routed out, such as continually running sprinklers over roads or refusing to install floatmeters to insure pump shut-off when a certain amount of water has been diverted. However, these practices usually come to an agency’s attention by way of complaint rather than through their own investigations. Agencies simply do not actively seek to define and enforce against waste or inefficient water use.”).

⁷⁹ Utah Admin. Code r.655-16-5 (LexisNexis 2021).

⁸⁰ *Id.*

⁸¹ Utah Code Ann. § 73-3-3(3) (“A person entitled to the use of water may make a change to an existing right to use water” if certain conditions are met). The State Engineer directs the Utah Division of Water Rights, a state agency which administers the use and allocation of the state’s water resources.

⁸² See *id.* (“A person entitled to the use of water may make a change to an existing right to use water [if] . . . the state engineer approves the change application, consistent with Section 73-3-8.”); See Utah Code Ann. § 73-3-8 (“It shall be the duty of the state engineer to approve an application if there is reason to believe that . . . the proposed use will not impair existing rights or interfere with the more beneficial use of the water.”).

⁸³ *Id.* § 73-1-4(2)(a) (“[W]hen an appropriator or the appropriator’s successor in interest abandons or ceases to beneficially use all or a portion of a water right for a period of at least seven years, the water right or the unused portion of that water right is subject to forfeiture. . . .”). Additionally, water rights holders can forfeit portions of their appropriative rights. *Delta Canal Co. v. Frank Vincent Family Ranch, LC*, 2013 UT 69 ¶ 28 (“We hold that the only plausible reading of the Forfeiture Statute, when viewed in conjunction with the Beneficial Use Statute, is that a water right may be forfeited either in whole or in part.”).

⁸⁴ Boulder Canyon Project Act of 1928, Pub. L. No. 70-642, 45 Stat. 1057 (codified at 43 U.S.C. §§ 617–617v).

⁸⁵ *Id.* § 5.

⁸⁶ *Id.*

⁸⁷ 373 U.S. 546 (1963).

⁸⁸ *Arizona v. California*, 547 U.S. 150, 156 (2006) (consolidated decree) (emphasis added) (excluding reserved rights holders along the Lower Colorado River from the Section 5 contract requirement).

⁸⁹ 373 U.S. 546, 586 (1963) (“[I]t is the [Boulder Canyon Project] Act and the Secretary’s contracts, not the law of prior appropriation, that control the apportionment of [Colorado River mainstem] water among the [Lower Basin] States. Moreover . . . we hold that the Secretary in choosing between users within each State and in settling the terms of his contracts is not bound by these sections to follow state law.”).

⁹⁰ See generally Reed D. Benson, *Whose Water is it? Private Rights and Public Authority Over Reclamation Project Water*, 16 VA. ENVTL. L.J. 363, 397–98 (1997) (“[U]sers without [Reclamation] contracts have no right to receive project water, even if they have actually applied project water to a beneficial use. . . . [Additionally], users must comply with contract terms or risk losing their rights to receive project water.”).

⁹¹ See U.S. Bureau of Reclamation, *Utah Water Right*, 1958, No. 41-2963, Application No. A30414, https://www.waterrights.utah.gov/asp_apps/DOCDB/DocImageToPDF.asp?file=docSys/v408/c408/C408027J.TIF; U.S. Bureau of Reclamation, *Utah Water Right*, No. 41-3479, Application No. A30414d, https://www.waterrights.utah.gov/asp_apps/wrprint/wrPrintAction.asp?wrnum=41-3479&action=print_report&print=wr (Reclamation, in following the Reclamation Act of 1902, obtained rights to store water in the Reservoir from the State of Utah in 1958 pursuant to state law prior appropriation. From this initial appropriation, Reclamation has segregated numerous portions of the 1958 water right to various water rights holders throughout the state); see also, One notable segregation of Water Right No. 41-2963 includes the State of Utah Board of Water Resources, *Utah Water Right No. 41-3479*

(316,029,936 acre-feet annually). In essence, water rights segregated by Reclamation, while transferred to entities and water users in Utah and subject to Water Use Contracts with Reclamation, remain appropriative in nature and remain subject to state water law.)

⁹² See Benson, *supra* note 90, at 411 (1997) (“The Bureau’s primary authority over project water is based not on what the government owns, but on what it gives. Every reclamation project provides a federal benefit—publicly subsidized water—to certain users. In return, the United States has the power to attach conditions to delivery of that benefit. Users must accept those conditions if they want to receive project water.”) (citing *Ivanhoe Irrigation Dist. v. McCracken*, 357 U.S. 275 294-95 (1958)).

⁹³ See Utah Code Ann. § 73-31-501(3) (“A banked water right is excused from beneficial use requirements pursuant to Subsection 73-1-4 (2)(e)(xi).”). (One notable distinction must be made with respect to a Utah ICS Program and the storage of water rights and the beneficial use tenet in Utah. Under the Water Banking Act in Utah, water rights that are stored for a future beneficial use are not subject to forfeiture under state law); Utah Code Ann. § 73-34-105 (Under the Water Banking Act, “only a water bank approved under this chapter may avail itself of the statutory provisions that apply to a water bank.”); Utah Code Ann. § 73-31-104. (It is unlikely that a Utah ICS Program would be approved as a water bank under the Water Banking Act, as the outlined objectives of a water bank under the Water Banking Act do not include water storage for Compact compliance. Since a Utah ICS Program would likely not be an approved water bank under the Utah Water Banking Act, the storage of water rights pursuant to a Utah ICS Program could still be subject to state law forfeiture claims.).

⁹⁴ Utah Code Ann. §§ 73-1-4(2)(e)(xi), 73-31-501(3).

⁹⁵ See discussion *infra* Section IV.B.4.b.

⁹⁶ Utah Code Ann. § 73-1-4(2)(e)(v); *id.* §§ 73-3b

⁹⁷ See Utah Code Ann. § 73-3-8(1)(a)(ii) (“It shall be the duty of the state engineer to approve an application if there is reason to believe that . . . the proposed use will not impair existing rights . . .”).

⁹⁸ See discussion *infra* Section IV.B.4.c.

⁹⁹ See discussion *infra* Section IV.B.4.b. on ICS alienability in a Utah ICS program.

¹⁰⁰ Utah Code Ann. § 73-31-501(3).

¹⁰¹ Colorado River Storage Project Act § 1, ch. 203, 70 Stat. 105 (1956) (codified at 43 U.S.C. § 620).

¹⁰² *Mission & Vision*, COLO. RIVER AUTH. UTAH, <https://cra-utah.org/about/mission-vision> (last visited Mar. 27, 2022).

¹⁰³ *Conservation*, COLO. RIVER AUTH. UTAH, <https://cra-utah.org/conservation> (last visited Mar. 27, 2022).

¹⁰⁴ See Anne J. Castle, *Drought Contingency Planning in the Colorado River Basin*, 66 ROCKY MT. MIN. L. FOUND. ANN. INST. § 6.05(2)(b) (2020) (“Below elevation 3,490 feet, no hydropower can be produced and the only mechanism available for releasing water out of Lake Powell is the ‘river outlets’ at the bottom of the dam.”).

¹⁰⁵ Brian Maffly, *Extreme Actions Underway to Ensure Glen Canyon Dam Can Continue to Generate Power*, SALT LAKE TRIB. (July 20, 2021, 3:56 PM), <https://www.sltrib.com/news/environment/2021/07/19/feds-release-water-down/>.

¹⁰⁶ *Id.*

¹⁰⁷ See, e.g., Dennis Kubly, *The Glen Canyon Dam Adaptive Management Program*, 11 WATER RESOURCES IMPACT 11, 11–12 (2009), <https://www.jstor.org/stable/10.2307/wateresimpa.11.3.0011> (“The GCDAMP is funded primarily from hydropower revenues that are deposited in the Colorado River Basin Storage Project Basin Fund and managed by Western Area Power Administration. The Bureau of Reclamation is the managing agency of the GCDAMP and administers the hydropower revenues expended by the program. In 2009, the GCDAMP budget contained just under \$10 million of hydropower funding . . .”); *Glen Canyon Unit*, U.S. BUREAU OF RECLAMATION, <https://www.usbr.gov/uc/rm/crsp/gc/> (last visited March 27, 2022) (“Glen Canyon Powerplant produces around five billion kilowatt-hours of hydroelectric power annually which is distributed by the Western Area Power Administration to Wyoming, Utah, Colorado, New Mexico, Arizona, Nevada, and Nebraska. In addition, revenues from production of hydropower help fund many important environmental programs associated with Glen and Grand canyons.”). See also Maffly, *supra* note 106 (“Here we are now in 2021, and the basic underlying assumptions that we’ve been able to rely on are beginning to erode and we can’t count on the hydrology. And when we can’t count on the hydrology we can’t count on the hydropower and hydropower revenues . . .”).

¹⁰⁸ See 2007 INTERIM GUIDELINES, *supra* note 46, at 19,887–88.

¹⁰⁹ LOWER BASIN DCP EXHIBIT 1, *supra* note 64, at § IV.E.1.

¹¹⁰ See Offstream Storage of Colorado River Water and Development and Release of Intentionally Created Unused Apportionment in the Lower Division States, 43 C.F.R. §§ 414.1–414.6 (2016) (explaining the definitions and requirements for authorized entities and interstate release agreements); see also Robison, *supra* note 20, at 544–45 (detailing the Lower Basin water banking program).

¹¹¹ ELAN EBELING, ET AL., WATER BANKING AND WATER MARKETING IN SELECT WESTERN STATES 15 (2019), <https://apps.wr.ecology.wa.gov/docs/WaterRights/wrwebpdf/WaterBankingandWaterMarketinginSelectWesternStates.pdf>.

¹¹² *Id.*

¹¹³ See, e.g., WESTERN GOVERNORS ASSOC., WATER TRANSFERS IN THE WEST: PROJECTS, TRENDS, AND LEADING PRACTICES IN VOLUNTARY WATER TRADING 23–26 (2012), https://www.circleofblue.org/wp-content/uploads/2012/12/Western-Governors_Water-Transfers-in-the-West-2012.pdf (analyzing the various impacts of water marketing); See generally Jesse Reiblich & Christine A. Klein, *Climate Change and Water Transfers*, 41 PEPP. L. REV. 439, 469–76 (2014) (detailing some of the positives and negatives of water marketing).

¹¹⁴ Utah Code Ann. § 73-3-8(1)(a), (1)(b), (c).

¹¹⁵ Sandra Zellmer, *Collaboration and the Colorado River: The Anti-Speculation Doctrine and Its Implications for Collaborative Water Management*, 8 NEV. L. J. 994, 997 (2008) (“The law of all western states prohibits speculation, either explicitly or through requirements that water be applied continuously to actual, beneficial use.”); *id.* (“Speculation is the act of acquiring a resource for the purpose of subsequent use or resale, in hopes of profiting from future price fluctuations.”); Utah Code Ann. § 73-3-8(1)(a)(v) (stating that the State Engineer may only approve a water right application “if there is reason to believe that [among other things] . . . the application was filed in good faith and not for purposes of speculation or monopoly.”); see also *Frailey v. McGarry*, 116 Utah 504, 516 (1949) (“It is equally clear that speculation in the public waters of this state is against the best interests of its people. Although the legislature has given formal expression to this principle, the principle would be equally true in the absence of statute.”); *Eardley v. Terry*, 94 Utah 369, 381 (1938) (Wolfe, J., concurring) (an applicant for a water right “cannot file on it and sit idly by waiting for it to become more valuable. Speculation in water rights is sought to be avoided.”).

¹¹⁶ See, e.g., Utah Code Ann. § 73-31-501(3) (“A banked water right is excused from beneficial use requirements pursuant to Subsection 73-1-4 (2)(e)(xi).”).

¹¹⁷ See discussion *supra* Section IV.B.4.b. Alienability of ICS would be done through temporarily leasing the right to use a set amount of ICS to a third party.

¹¹⁸ See Utah Code Ann. § 73-3-3(4)(b).

¹¹⁹ Utah Code Ann. § 73-3-8(1)(a), (1)(b), (c) (“If the state engineer, because of information in the state engineer’s possession obtained either by the state engineer’s own investigation or otherwise, has reason to believe that an application will interfere with the water’s more beneficial use . . . or will unreasonably affect public recreation or the natural stream environment, or will prove detrimental to the public welfare, the state engineer shall withhold approval or rejection of the application until the state engineer has investigated the matter. If an application does not meet the requirements of this section, it shall be rejected.”).

¹²⁰ See, e.g., OREGON WATER RESOURCES DEP’T, WATER RIGHTS IN OREGON: AN INTRODUCTION TO OREGON’S WATER LAWS 18 (2018), <https://www.oregon.gov/owrd/WRDPublications/aquabook.pdf> (“When [water right] applicants seek to use stored water only, the application will receive an expedited review leading directly to a final order, unless public interest issues are identified following the public notice of filing. If such issues are raised adequately, the application will undergo the standard review process to allow thorough public participation.”); *id.* at 31 (“Upon the Governor’s issuance of an Executive Order declaring a drought emergency, the Department is allowed to offer certain tools to water right holders in a drought declared County. These tools have an expedited review process, reduced fee schedule, and are intended to be short-term emergency authorizations.”); WASH. DEP’T ECOLOGY, WASHINGTON STATE DROUGHT CONTINGENCY PLAN 45–46 (2018), <https://apps.ecology.wa.gov/publications/documents/1811005.pdf> (“Under an emergency drought

declaration, [the Washington Department of] Ecology is authorized to issue emergency drought permits to water right holders if their water supply is likely to be below 75 percent of normal and they are at risk of experiencing hardship Applicants might request an alternate point of groundwater withdrawal or surface water diversion to compensate for loss of surface water supply, or temporary transfers of a water right to another user.”).

¹²¹ See *Water Rights*, UTAH DEP’T OF NATURAL RESOURCES, <https://naturalresources.utah.gov/water-rights> (last visited May 3, 2021) (“Once a use is authorized, the [State Engineer] monitors development to assure the use actually occurs before a permanent or perfected water right certificate is issued.”).

¹²² See LOWER BASIN DCP EXHIBIT 1, *supra* note 64, at IV(C). Although the Lower Basin ICS Program does cap the creation of ICS, the Lower Basin states and Reclamation agreed to increase those creation limitations in the 2019 Lower Basin DCP. See U.S. DEP’T OF INTERIOR, BUREAU OF RECLAMATION, REVIEW OF THE COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES AND COORDINATED OPERATIONS FOR LAKE POWELL AND LAKE MEAD 34 (2020), https://www.usbr.gov/ColoradoRiverBasin/documents/7.D.Review_FinalReport_12-18-2020.pdf (“Reclamation and Contractors recognized that the role of ICS in preventing Lake Mead’s decline to critical elevations was becoming increasingly important, and that the creation and accumulation limits set forth in the [Interim] Guidelines disincentivized Contractors from creating additional voluntary conservation to improve reservoir conditions. In response, the [Lower Basin] DCP incorporated greater annual flexibility and a higher accumulation limit.”).

¹²³ One concern with placing no limit on the creation and storage of ICS water in the Reservoir pertains to the Reservoir’s more modest storage capacity when compared to Lake Mead. In theory, enough ICS could be stored in the Reservoir to reach its maximum storage capacity, requiring releases from the Reservoir to maintain proper storage levels. While this may be a possibility, it is highly unlikely that Utah water user participation in an intrastate ICS program alone would fill the Reservoir to the brim anytime in the near future. However, a Utah ICS program could include provisions anticipating a time when maxing out the Reservoir could become a reality by triggering ICS creation and storage caps once the Reservoir reaches a certain set level of storage. In all, at this initial stage, a Utah ICS program should prioritize ICS creation and storage to conserve system water and ensure Compact compliance about the theoretical possibility of reaching the Reservoir’s more modest maximum storage capacity.

¹²⁴ See discussion *supra* Section IV.B.4.b.

¹²⁵ See Utah Code Ann. § 73-3-8(1)(a)(ii) (“It shall be the duty of the state engineer to approve an application if there is reason to believe that . . . the proposed use will not impair existing rights. . . .”).

¹²⁶ While different metrics could be used to determine adequate levels of Colorado River system water to allow for ICS deliveries, the State of Utah and Reclamation should consider tying ICS delivery timing with the projected level of stored water in Lake Powell.

¹²⁷ LOWER BASIN DCP EXHIBIT 1, *supra* note 64, at III.D.3.

¹²⁸ UPPER BASIN INITIAL UNIT OPERATIONS AGREEMENT, *supra* note 63, at A.2.

¹²⁹ Given that the released ICS water would seemingly constitute a taking of the entire property right to use the released ICS, the owners of the released ICS may be entitled to just compensation pursuant to Takings Clause jurisprudence. See, e.g., A. Dan Tarlock, *Takings, Water Rights, and Climate Change*, 36 VT. L. REV. 731, 748–56 (2012).

¹³⁰ See UPPER BASIN INITIAL UNIT OPERATIONS AGREEMENT, *supra* note 63 (If ICS water were released by Reclamation to augment water storage in Lake Powell, those Utah water rights holders who created and stored the released ICS water would likely be due compensation under the Fifth Amendment takings clause); see generally Douglas L. Grant, *ESA Reductions in Reclamation Water Contract Deliveries: A Fifth Amendment Taking of Property?*, 36 ENVTL. L. 1331 (2006); James L. Huffman, Hertha L. Lund & Christopher T. Scoones, *Constitutional Protections of Property Interests in Western Water*, 41 PUB. LAND & RESOURCES L. REV. 27 (2019).

¹³¹ James Eklund, *Saving the Colorado River: How Demand Management Can Save the Colorado River*, 206 WATER REPORT 6-7 (2021).

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electricity in 2020 but is projected to be 20% by 2050 with no change to current laws and regulations. The EIA projects that total electricity generation from renewables will double by 2050).

⁷ Springer, *supra* note 4, at 14-15.

⁸ *Id.* at 3 (Along with their competitive costs, renewables have the potential to provide thousands of jobs, contribute billions in capital investments, and reduce dependency on dirty fossil fuels and foreign oil.)

⁹ Patrick Devine-Wright, *Rethinking NIMBYism: The Role of Place Attachment and Place Identity in Explaining Place-protective Action*, 19 J. OF CMTY. & APPLIED SOC. PSYCH. 426-441 (Jan. 5, 2009) (explaining that NIMBYism is an acronym describing the concept of “Not In My Backyard,” and is commonly used to explain public opposition to new development near homes and communities, particularly arising from energy technologies such as wind farms or electricity pylons).

¹⁰ For example, wind power is particularly land-intensive and can have significant adverse impacts on species habitats and can interfere with open space and wilderness values. Moreover, large-scale offshore wind farms require construction of transmission lines in state tidal and navigable waters protected by the public trust doctrine or in federal territorial seas subject to federal environmental protection mandates. Alexandra B. Klass, *Renewable Energy and the Public Trust Doctrine*, 45 U.C. DAVIS L. REV. 1021 (2012); see also Miller, C.A., Richter, J. SOCIAL PLANNING FOR ENERGY TRANSITIONS, *Curr Sustainable Renewable Energy Rep* 1, 77-84 (2014). <https://doi.org/10.1007/s40518-014-0010-9>; Nathaniel Logar, *When the Fast Track Hits the off Ramp: Renewable Energy Permitting and Legal Resistance on Western Public Lands*, 27 COLO. NAT. RESOURCES ENERGY ENVTL L. REV. 361 (2016).

¹¹ Exec. Order No. 14008, 86 Fed. Reg. 7619, 7624 (Jan. 27, 2021) (asserting goal of doubling offshore wind by 2030); *Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*, WHITE HOUSE BRIEFING ROOM (Dec. 8, 2021), <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/12/08/executive-order-on-catalyzing-clean-energy-industries-and-jobs-through-federal-sustainability/> (discussing President Biden’s Executive Order to make the federal government carbon-neutral by 2050).

¹² See *A vision for responsible renewable energy on public lands*, WILDERNESS SOC.: BLOG (Apr. 28, 2021), <https://www.wilderness.org/articles/blog/vision-responsible-renewable-energy-public-lands#> (Congress passed the Energy Act of 2020, which set a target of permitting 25 gigawatts of renewable energy on public lands by 2025—a threefold increase in the projects approved to date and enough to power over 10 million homes.).

¹³ Alexandra B. Klass, *Renewable Energy and the Public Trust Doctrine*, 45 U.C. DAVIS L. REV. 1023, 1040 (2012).

¹⁴ George C Coggins et al., *Federal Public Lands and Resources Law* 418 (7th ed. 2014)[hereinafter Coggins].

¹⁵ *Id.*

¹⁶ See e.g., *The Federal Land Management Agencies*, CONG. RSCH. SERV. (Feb. 16, 2021) (“NPS law, regulations, and policies emphasize the conservation of park resources in conservation/use conflicts, and the systems lands and resources generally receive a higher level of protection than those of BLM and FS.”)

¹⁷ See 16 U.S.C. § 531(a).

¹⁸ Coggins, *supra* note 14, at 416 (FLPMA, for example, is the organic legislation that forms the basis of how BLM operates).

¹⁹ Current organic legislation requires that each major public land system implement and adhere to “comprehensive planning,” or comprehensive unit-level plans that contain certain elements. George Coggins et al., *Federal Public Land and Resources Law* 420 (Foundation Press, 7th ed. 2014) (asserting unit-level plans must contain several elements: (1) consideration of permitted uses; (2) public participation; (3) interdisciplinary analysis; (4) consideration of applicable overlapping state/local plans; and (5) zoning maps defining which regions are slated for more intensive development, protective proscriptions, or visitor facilities).

²⁰ 36 C.F.R. § 219.8 (defining connectivity, in part, as ecological conditions facilitating range shifts in response to climate change).

²¹ *Id.*; see also, Coggins, *supra* note 14, at 420.

²² 43 U.S.C. § 1732(b).

²³ Coggins, *supra* note 14, at 419.

²⁴ See *id.*

²⁵ Coggins, *supra* note 14, at 12.

²⁶ *Id.*

²⁷ 43 U.S.C. § 1702(c).

²⁸ See Solar Wind and Energy Rule, 43 C.F.R. § 2800 (2016) (establishing a purpose of facilitating responsible solar and wind energy development on BLM-managed lands); see also 81 Fed. Reg. 92,122 (Dec. 19, 2016).

²⁹ See Springer, *supra* note 4, at 11-13 (BLM codified this program for solar and wind in the 2016 Solar and Wind Energy Rule).

³⁰ *Id.* at 11

³¹ *Id.* at 12-13.

³² *Id.*

³³ Coggins, *supra* note 14, at 614.

³⁴ *Id.*

³⁵ *Expanding Clean Energy on Public Lands: Hearing on H.R. 3326, the Public Land Renewable Energy Development Act Before the H. Subcomm. on Energy and Mineral Res.*, 117TH CONG. (2021) (statement of Nada Wolff Culver, Deputy Dir., Bureau of Land Mgmt.) (mentioning BLM’s short-list of programmatic actions to facilitate RE development on BLM lands, including updating the Solar Energy Zones and West-wind Energy Corridors, without mentioning geothermal-specific designated priority areas).

³⁶ *GeoVision: Harnessing the Heat Beneath Our Feet*, U.S. DEP’T OF ENERGY (2019), <https://www.energy.gov/eere/geothermal/downloads/geovision-harnessing-heat-beneath-our-feet> (concluding that geothermal energy could support about 8.5% of the total national electricity demand by 2050, compared to the 0.4% of total generation it provides today).

³⁷ Jenkins, *supra* note 5 (Section 390 of the Energy Policy Act of 2005 created a categorical exclusion for drilling small wells [“unconventional” wells that use advanced extraction such as directional drilling and fracking] on public lands. Advanced geothermal wells are drilled with the same equipment, workforce, and surface footprint as oil and gas wells; they’re just drilling for heat instead of oil.)

- ²⁴ *Id.*
- ²⁵ *See id.*
- ²⁶ *See* Chris Edwards, *Entrepreneurs and Regulations: Removing State and Local Barriers to New Businesses*, CATO INSTITUTE (May 5, 2021), <https://www.cato.org/policy-analysis/entrepreneurs-regulations-removing-state-local-barriers-new-businesses#>.
- ²⁷ *See generally id.*
- ²⁸ *See generally* THE ASSOCIATED PRESS, *Earth given 50-50 chance of hitting key warming mark by 2026*, NBC (May 10, 2022) <https://www.nbcnews.com/science/environment/earth-50-50-chance-hitting-key-warming-mark-2026-rcna28060>.
- ²⁹ THE WHITE HOUSE, *The Child Tax Credit*, <https://www.whitehouse.gov/child-tax-credit/> (last visited Mar. 31, 2022).
- ³⁰ *See id.*
- ³¹ *See* THE WHITE HOUSE; Lynn Mucenski Keck, *The Build Back Better Plan Is Stalling: What's The Issue?*, FORBES (Jan. 10, 2022) <https://www.forbes.com/sites/lynnmucenskikeck/2022/01/10/the-build-back-better-plan-is-stalling-whats-the-issue/?sh=7511eb4c7378>.
- ³² *See generally* Alexander Bolton, *Democrats Frustrated with Latest Manchin Pitch on Build Back Better*, THE HILL (Mar. 4, 2022, 6:00 AM), <https://thehill.com/homenews/senate/596822-democrats-frustrated-with-latest-manchin-pitch-on-build-back-better>.
- ³³ *See generally id.*
- ³⁴ *See generally id.*

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