“Sophistical and Abstruse Formulas” Made Simple: Advances in Measurement of *Penn Central*’s Economic Prongs and Estimation of Economic Damages in Federal Claims and Federal Circuit Courts

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Preface

BY ITS REPEATED RELIANCE ON THE *PENN CENTRAL* TEST, the Supreme Court clearly implies that regulatory takings do not require that all value be eliminated from the use of property before a citizen is entitled to compensation. While the Court has not clarified the economic prongs of the *Penn Central* test, U.S. Court of Federal Claims and U.S. Court of Appeals for the Federal Circuit have defined, measured, and evaluated the economic underpinnings of partial takings and temporary takings. In view of the confusion in so many state courts arising from the lack of clarification from the U.S. Supreme Court, the jurisprudence from the two federal courts provides sufficient guidance to enable courts and lawyers to consistently evaluate takings claims.

This article reviews the Supreme Court’s lack of clarity about the economic prongs of the *Penn Central* test in contrast to recent decisions from the Federal Claims Court and the Federal Circuit Court to show how those courts have advanced the framework of the *Penn Central* test and measurement of damages. Specifically, these decisions clarify

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Thanks to Justice Frankfurter whose words in *Kimball Laundry v. United States*, 338 U.S. 1, 20 (1949), provided inspiration for the title. “Particularly is this true where these issues are to be left for jury determination, for juries should not be given sophistical and abstruse formulas as the basis for their findings nor be left to apply even sensible formulas to factors that are too elusive.” *Id.*

how to apply, measure, and evaluate the elements of the *Penn Central* test to determine when a compensable taking has occurred. In order to establish a predictable legal standard for the *Penn Central* test, the Supreme Court needs only to adopt the lessons learned in the Federal Claims Court and Federal Circuit Court since 1999.

I. Clear Benchmarks to Recognize a Regulatory Taking Vex Supreme Court Justices[1]—and Everybody Else

A. *Jurists, Litigators, and Academics Seek Guideposts to a Polestar*

In *Lingle v. Chevron*, the U.S. Supreme Court reaffirmed the *Penn Central* three-prong test as its "polestar"—the principal guidelines—for resolving regulatory takings claims that do not fall within the *Lucas* rule for a categorical taking.[2] Regulatory takings litigators and academics on both sides of the issue have criticized the Court's "vague *ad hocery*"[3] in approaching the "famously muddy language of the *Penn Central* decision."[4] The Court has bemoaned the lack of clear mile markers to reach that polestar.[5] My own writings have objected to the failure of courts to advance the rigorous *empirical* analysis invoked in an *ad hoc* fashion in *Penn Central.*[6]

Damages are due for a non-*Lucas* regulatory taking if the *Penn Central* test shows that a compensable taking has occurred. To determine

1. *See* San Remo Hotel v. City of San Francisco, 125 S. Ct. 2491, 2504 (2005); Lingle v. Chevron U.S.A., Inc., 125 S. Ct. 2074, 2082 (2005) (unanimous decision); Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 535 U.S. 302, 322 (2002); Palazzolo v. Rhode Island, 533 U.S. 606, 632–36 (2001) (O'Connor, J., concurring) (stating that the *Penn Central* test cannot be reduced to one formula).

2. *Lingle*, 125 S. Ct. at 2074 (citing Palazzolo v. Rhode Island, 533 U.S. 606, 617–18 (2001) (O'Connor, J., concurring).

3. Michael M. Berger, Tahoe-Sierra: *Much Ado About-What?*, 25 HAW. L. REV. 295, 311–12 (2003).

4. John D. Echeverria, *A Turning of the Tide: The* Tahoe-Sierra *Regulatory Takings Decision*, 32 ENVTL. L. RPTR. 11,235 (Oct. 2002), *available at* www.georgetown.edu/gelpi/papers/32.11235.pdf (last visited Feb. 24, 2006); *see* Berger, *supra* note 3, at 295; Gideon Kanner, *Making Laws and Sausages: A Quarter-Century Retrospective on* Penn Central Transportation Co. v. City of New York, 13 WM. & MARY BILL RTS. J. 653, 679–759 (2005); Gideon Kanner, *Hunting the Snark, Not the Quark: Has the U.S. Supreme Court Been Competent in Its Effort to Formulate Coherent Regulatory Takings Law?*, 30 URB. LAW. 307 (1998). Although the quoted words are from Berger and Echeverria, Kanner's articles must be read together with the other two to encompass the full range of scholars' problems with *Penn Central.*

5. *Tahoe-Sierra*, 535 U.S. at 302 (2002) (stating "[w]hen, however, the owner contends a taking has occurred because a law or regulation imposes restrictions so severe that they are tantamount to a condemnation or appropriation, the predicate of a taking is not self-evident, and the analysis is more complex."). *Id.* at 322 n.17.

6. *E.g.*, William W. Wade, Penn Central*'s Economic Failings Confounded Taking Jurisprudence*, 31 URB. LAW. 277, 282, 307 (1999).

a compensable taking "[u]nder *Penn Central*, courts use a three-factor analysis to assess claimed regulatory takings: (1) [the] character of the governmental action, (2) [the] economic impact of the regulation on the claimant, and (3) [the] extent to which the regulation interfered with distinct investment-backed expectations."[7]

Two of *Penn Central's* three factors entail economic analysis:

1. Economic impact of the regulation on the claimant; and
2. Interference with distinct investment-backed expectations (DIBE).[8]

The desire for a clear standard to determine whether a regulatory taking is compensable needs to be promoted from its footnote status in *Tahoe-Sierra* to the heart of takings law. Vexed or not, the inability to evaluate the empirical economic underpinnings of two prongs of the *Penn Central* test may place blinders on the Court.[9]

B. *Twenty-Five Years Since the Last Clarification of the Economic Prongs of the* Penn Central *Test in the Supreme Court*

The Supreme Court has reiterated repeatedly since *Penn Central* that "the issue [of] whether a landowner has been deprived of all economically viable use of his property is a predominantly factual question."[10] Beyond the original direction in the *Penn Central* decision requiring "*ad hoc*, factual inquiries [into] . . . several factors that have particular significance,"[11] concrete guidelines to evaluate the particular

7. Cienega Gardens v. United States, 331 F.3d 1319, 1337 (Fed. Cir. 2003) (citing Penn. Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978)).

8. *Penn Cent.*, 438 U.S. at 124.

9. The late Chief Justice Rehnquist is not included in this criticism. Justice Rehnquist's dissent in *Penn Central*, 438 U.S. at 137, called attention to the majority's lack of definition for "reasonable return" or "economically viable" language and concluded that a rule without definitions poses "difficult conceptual and legal problems." *Id.* at 149. Rehnquist's footnote 13 appears to point out politely that the majority does not resolve how the economic terms used in their language will apply to specific situations. *Id.* Chief Justice Rehnquist's later decision in *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 309 (1989), emphasized that physical assets are not simply balance sheet items, but "assets . . . to be valued . . . [as] devoted to the public utility enterprise." This grasp of property as an earning asset is exactly akin to his earlier dissent in *Penn Central*, which recognized the property taken as the foregone earnings from the leased air space. His *Duquesne* decision, which ruled against the utility, is numerically erudite and aligned with economic theory and practice. Given the risks of the business, the equity owners' loss was small and "[resultant] rates [of return were not demonstrated to be] inadequate to compensate current equity holders for the risk associated with their investments." *Duquesne*, 488 U.S. at 312.

10. City of Monterey v. Del Monte Dunes, 526 U.S. 687 (1999). This opinion contains a good summary of the Court's reliance on "factual inquiries" beginning with *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922). *Id.* at 720.

11. *Penn Cent.*, 438 U.S. at 124.

economic factors have been slim at the Supreme Court.[12] The Court typically does not deal with quantitative measurement issues, which is, perhaps, why the Court remains vexed in its search for clear predicates to measure and evaluate *Penn Central*'s three prongs.[13] Professor Kanner rails that this shortcoming of the Supreme Court is more than mere vexation.[14] "The major problem that bedevils this field of law is that . . . [the] Supreme Court has refrained from articulating usable rules that might enable lower court judges and lawyers to make reasoned, analytical judgments about the merits of their cases in a consistent fashion."[15]

Lewis S. Wiener counts thirty-three Supreme Court takings decisions since 1979.[16] Scanning the list, few can be said to have shed any light on the economic prongs of the *Penn Central* test. No language in any recent decision matches the clarity of economic insight in *Nectow v. City of Cambridge*: "[T]he master finds 'that *no practical use* can be made of the land in question for residential purposes because . . . there would not be adequate *return on the amount of any investment* for the development of the property.' "[17]

Agins, twenty-six years ago, was the last clarification from the U.S. Supreme Court about how the *economic* prongs of the *Penn Central* test might show that compensation is due for a noncategorical taking.[18]

12. Wade, *supra* note 6, at 294–96 (discussing the Court's clarifications of "legitimate state interests" in the *Nollan* and *Dolan* decisions, making the point at that time, "[u]nless the Court's intention is to *allow* regulatory *takings* claims only in the unusual situation where economic use is totally eliminated by a regulation, the second prong of the *Agins* test must be clarified to match economic practice." *Id.* at 296). *Nollan v. California Coastal Commission*, 483 U.S. 825 (1987), and *Dolan v. City of Tigard*, 512 U.S. 374 (1994), are hailed as advancing the understanding of what, beyond assuring health and safety, constitutes legitimate state interests.

13. *See* San Remo Hotel v. City of San Francisco, 125 S. Ct. 2491, 2504 (2005); Lingle v. Chevron U.S.A., Inc., 125 S. Ct. 2074, 2082 (2005) (unanimous decision); Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 535 U.S. 302, 322 (2002); Palazzolo v. Rhode Island, 533 U.S. 606, 632–36 (2001) (O'Connor, J., concurring) (stating that *Penn Central* test cannot be reduced to one formula).

14. *See* Kanner, *supra* note 4, at 680–83.

15. *Id.* at 683.

16. Lewis S. Wiener, *Has the High Court Taken Away Private Property Rights?*, 20 LEGAL BACKGROUNDER 39, Aug. 12, 2005, at 2, *available at* http://www.wlf.org/upload/081205LBWiener.pdf (last visited Feb. 22, 2005).

17. 277 U.S. 183, 185 (1928) (emphasis added). Though a substantive due process case, *Nectow* nonetheless is the Court's high point of economic insight into government frustration of investment expectations. *Id.* at 185.

18. Agins v. City of Tiburon, 447 U.S. 255 (1980). *Lucas* confirmed a polar economic case: if the property owner has been denied "all economically beneficial use," this is a categorical taking and compensable without case-specific factual inquiry into the public interest balance. 505 U.S. at 1019. If some value remains, however small, *Lucas* provides no new guidance. *Id. Lucas* did not clarify the *Penn Central* test, 438 U.S. at 104, unless one wants to consider "the relatively rare situations where the government has deprived a landowner of *all* economically beneficial uses," a special

Agins clarified the *Penn Central*[19] three-prong balancing test to require compensation, where legitimate state interests are advanced, if the regulation denies the owner "economically viable use" of the property.[20] The decision added the word "viable" to the lexicon; but no threshold for denial of economically viable use was defined or relied upon in *Agins.*[21] Even after *Lingle*, which eviscerates the "substantially advances" element of *Agins*, the term "economically viable use" remains intact.[22]

Penn Central itself did include some insightful language about what might constitute economic viability: "More importantly, on this record, we must regard the New York City law as permitting Penn Central not only to profit from the Terminal but also to obtain a 'reasonable return' on its investment."[23] *Tahoe-Sierra*, however, reveals the difficulty the Court has in understanding the effect of the time value of money on "economically viable use," profitability or reasonable returns.[24] If the Supreme Court is to continue its reliance on *Penn Central*[25] for takings that do not reach the level of categorical *Lucas* takings, its time for the Court to overcome its poor grasp of the economic content of the *Penn Central* language.

A regulatory taking may still be found if the result of the regulation is to deny plaintiff economically viable use of his property.[26] This, of course, begs the point of this article; in the absence of instruction from the U.S. Supreme Court, what can be learned from recent decisions in

case of the *Penn Central*'s factors requiring no further balancing. *Lucas*, 505 U.S. at 1018 (1992) (emphasis added). While *Lucas* applied the second *Agins* prong, the decision focused on the value of the property remaining, accepted as zero, and did not advance consideration of when lesser economic losses become compensable. *Id.*

19. *Penn Cent.*, 438 U.S. at 124.

20. *Agins*, 447 U.S. at 260.

21. *Id.* at 255.

22. *Lingle*, 125 S. Ct. at 2074. *See also* Kirby Forest Industries, Inc. v. United States, 467 U.S. 1, 14 (1984) ("Thus, we have acknowledged that a taking would be effected by a zoning ordinance that deprived 'an owner [of] economically viable use of his land,' " citing to Agins v. Tiburon, 447 U.S. 255, 260 (1980)).

23. *Penn Cent.*, 438 U.S. at 136.

24. *Agins*, 447 U.S. at 260. The Court's erroneous adoption of the Ninth Circuit's temporal dimension as a characteristic of the denominator occurred despite the discussion of "value" in *Tahoe-Sierra* and underlying cases. Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 216 F.3d 764, 774 (9th Cir. 2000), *aff'd*, 535 U.S. at 302. One would have thought by now that more than economists understand that "in the long run, we'll all be dead." What matters to property value at a unique point in time are the uses that can be made of the property in the vicinity of that time. The longer the imposed delay from that time to the future uses, the lower the present value of the property's use to the owner. Chief Justice Rehnquist in his dissenting *Tahoe-Sierra* opinion understands this point. *Id.* at 562.

25. *Penn Cent.*, 438 U.S. at 104.

26. *Lingle*, 125 S. Ct. at 2082–83.

the Federal Claims Court and Federal Circuit Court about the economic prongs of the *Penn Central* test.

II. The Federal Claims Court and Federal Circuit Court—Guided by Economic Testimony—Advance Economic Predicates for the *Penn Central* Test

The Federal Circuit Court recognized sixteen years ago, in *Yuba Natural Resources Inc. v. United States* (*Yuba V*), that even though "the property is returned to the owner when the taking ends, the just compensation . . . is the value of the use of the property . . . which the owner lost as a result of the taking."[27] In the last six years, the Federal Claims Court and the Federal Circuit Court, which frequently deal with the factual inquiries within regulatory takings cases, have advanced substantially the economic predicates for evaluating the *Penn Central* factors. The following five cases established "a logical framework . . . a stable framework,"[28] to undertake the balancing called for in *Penn Central*, and more importantly to define and measure the economic terms:

- *Florida Rock Industries, Inc. v. United States*[29] (*Florida Rock V*),
- *Cienega Gardens v. United States*[30] (*Cienega VIII*),
- *Independence Park Apartments v. United States*,[31]
- *Tulare Lake Basin Water Storage Dist. v. United States*,[32] and
- *Cienega Gardens v. United States*[33] and *Chancellor Manor v. United States* consolidated with *Cienega Gardens*

These cases rely on competent empirical economic testimony in their findings.[34] The expert witnesses relied on standard financial theories, practices, and used established formulas to evaluate interference with distinct investment-backed expectations. The vague guidance of "too far," harkening to Justice Oliver Wendell Holmes' language[35] is no mystery to these experts—or to the judges who relied on their testimony.

The following sections of this article review recent cases in Federal Claims Court and the Federal Circuit Court to show how these courts

27. Yuba Natural Res., Inc. v. United States, 904 F.2d 1577 (Fed. Cir. 1990).
28. Fla. Rock Indus., Inc. v. United States, 45 Fed. Cl. 21, 23 (1999). This case established the framework, which subsequent cases have fleshed-out and extended.
29. *Fla. Rock*, 45 Fed. Cl. 21 (1999).
30. 331 F.3d 1319, 1337 (Fed. Cir. 2003).
31. 61 Fed. Cl. 692 (2004).
32. 61 Fed. Cl. 624 (2004).
33. *Cienega Gardens*, 67 Fed. Cl. at 434.
34. *See, e.g.*, *Cienega Gardens*, 331 F.3d at 1340; *see* authorities cited in notes 99–101 and related text.
35. *Pa. Coal Co.*, 260 U.S. at 415.

examined and relied on the economic underpinnings of the *Penn Central* test in recent years. In a limited way, this article extends a 1999 article by David F. Coursen, which reviewed cases in these same two courts through the time of his writing.[36]

A. Florida Rock V[37] *Established the Correct Economic Basis for the Denominator of the Takings Fraction*

Florida Rock V (1999) clarified conditions under which a partial reduction in value ("partial taking" of plaintiff's property) would justify payment of damages.[38] *Florida Rock V* establishes "a logical framework [to evaluate a partial taking] based upon well-established rules and principles . . . a stable framework," to undertake the balancing called for in the *Penn Central* three factor balancing test.[39] *Florida Rock V* eliminates the defense argument that "some value remains," so the property cannot have been taken.[40] Some value remaining is not enough.

Florida Rock V examines elements of the *Penn Central* test. The analysis of *Florida Rock V* provides quantitative answers to two straightforward questions related to a change in the federal regulatory regime that prevented Florida Rock from mining on its property.

- Has the value of the property been significantly diminished?
- Do revenues after regulatory change recoup investment in the property?[41]

The *Florida Rock V* decision examined the before and after values of the property based on the expert testimonies in the record, and adopted a 73.1 percent diminution in value of the property. Of critical importance to takings jurisprudence, "[t]he court [did] not rely on the magnitude of this diminution in value alone . . . to determine the severity of the economic impact to plaintiff resulting from permit denial."[42]

36. David F. Coursen, *The Takings Jurisprudence of the Court of Federal Claims and the Federal Circuit*, 29 Envtl. L. Rptr. 821 (1999). Mr. Coursen likewise commented on the Supreme Court's "vague and uncertain" takings jurisprudence. *Id.*

37. Fla. Rock Indus., Inc. v. United States, 45 Fed. Cl. 21 (1999). Florida Rock filed suit after the denial of a permit by the U.S. Army Corps of Engineers to mine 98 acres of a 1,560 acre parcel of aggregate limestone purchased in 1972 before federal law imposed a regulatory prohibition.

38. *Id.*

39. *Penn Cent.*, 438 U.S. at 124.

40. *Fla. Rock*, 45 Fed. Cl. at 21.

41. *Id.* at 24.

42. *Id.* at 37.

Florida Rock V establishes the investment basis in the property as the denominator of the takings fraction and compares returns before and after the change in regulation to that investment basis to determine that no "reasonable return" was possible.[43] This ruling clarifies the all important takings fraction to require measurement of the investment in the property as the "value . . . to furnish the denominator of the fraction,"[44] correcting *Keystone*'s misfocus on comparing "after" values to "before" values,[45] a ratio that reveals nothing about the effect of regulatory change on economic viability of the investment. Only by comparing returns before and after to the investment basis in the property can courts evaluate frustration of DIBE with standard financial methods and performance benchmarks—net present value of cash flows and internal rate of return.

In *Florida Rock V*, then Chief Judge Loren Smith wrote the opinion for the court, which adopts the plaintiff economist's estimate of the inflation adjusted economic basis in the property as of the taking date.[46] Judge Smith found "that [the] plaintiff could have recovered barely half of its inflation adjusted investment in the subject property through the only remaining means, resale as a speculative investment."[47] *Florida Rock V* relies on language from *Penn Central*, which "emphasize[s] the importance of obtaining a "reasonable return" on the property owner's investment in determining the presence of a taking.[48] "More importantly, on this record, we must regard the New York City law as permitting Penn Central not only to profit from the Terminal but also to obtain a 'reasonable return' on its investment."[49]

Judge Smith concluded that plaintiff's investment-backed expectations were frustrated because returns after permit denial barely recovered half of the plaintiff's investment basis in the property.[50] "In sum, the court finds that Florida Rock's reasonable investment-backed expectations were frustrated. Florida Rock had no reason when it purchased its property to expect that its rights to mine or develop the land were open to question."[51] Judge Smith's calculation in *Florida Rock V*

43. *Id.* at 38. See particularly note 12 dealing with plaintiff economist's estimate of economic basis in the property.
44. Keystone Bituminous Coal Ass'n v. DeBenedictis, 480 U.S. 470, 497 (1987).
45. *Fla. Rock*, 45 Fed. Cl. at 21.
46. *Id.* at 38.
47. *Fla. Rock*, 45 Fed. Cl. at 38.
48. *Id.* at 39 (citing *Penn Cent.*, 438 U.S. at 149 (Rehnquist, J., dissenting)).
49. *Id.*
50. *Id.*
51. *Id.*

does not include consideration of a reasonable return on the investment; it was a moot point because the returns did not even pay back the inflation adjusted out of pocket investment costs.[52]

B. *Temporary Takings Cases Establish Correct Economic Basis for Frustration of DIBE*

1. TEMPORARY TAKINGS CASES IN THE FEDERAL CLAIMS AND CIRCUIT COURTS RELY ON ECONOMIC TESTIMONY

In 1988, Congress passed the Emergency Low-Income Housing Preservation Act (ELIHPA) to prevent owners of low-income housing projects from converting their properties to market rents as allowed under the owners' original government-insured mortgage contracts.[53] Two years later, the Low-Income Housing Preservation and Resident Homeownership Act (LIHPRHA) replaced ELIHPA. LIHPRHA imposed permanent restrictions on property owners' rights to prepay their mortgages and convert to market rents. With rents restricted under LIHPRHA, ELIHPA, and related statutes, owners earned substantially less than they anticipated in their original contract with HUD and the Farmers Home Administration (FmHA).[54] Consequently, this led to an ongoing series of lawsuits by the owners alleging both contract and takings claims. As of October 2005, the plaintiff has won in five related cases: *Franconia Associates v. United States*, where the plaintiff won on the basis of contract law involving the FmHA's § 515 program;[55] *Cienega Gardens* in 2003 in Federal Circuit Court and in 2005 in the Court of Federal Claims,[56] *Independence Park Apart-*

52. *Fla. Rock*, 45 Fed. Cl. at 39. *But see* Walcek v. United States, 49 Fed. Cl. 248 (2001). *Walcek* reveals that inconsistency bedevils the Claims Court as well. *Id.* Judge Francis M. Allegra's opinion ruling against the plaintiff decided that "plaintiffs' use of inflation adjustments in their computations suffer from what Justice Holmes, in another context, called '[t]he dangers of a delusive exactness.' " *Id.* at 267. Economists routinely rely on inflation indices to adjust dollars to a common metric to avoid the apples and oranges problem of comparing dollars of different vintages. In the changing epochs of high and low inflation that encompass Mrs. Walcek's investments in property between 1957–1976, when money was worth something, and returns received later, after the Vietnam War ran up inflation, one has to adjust all dollars to a common metric that fairly measures the returns foreclosed by the regulation against investments. Judge Allegra cited but excluded the readily available government inflation indices used everyday in all sorts of applications to adjust dollars of different years to a common metric. Mr. Walcek, who represented his wife, did not engage an economist.

53. Pub. L. No. 100–242 (1988).

54. *Id.*; Pub. L. No. 101–625 (1990).

55. Franconia Assoc. v. United States, 61 Fed. Cl. 718 (2004).

56. Cienega Gardens v. United States, 331 F.3d 1319, 1337 (Fed. Cir. 2003); Cienega Gardens v. United States, 67 Fed. Cl. 434 (2005). Cienega Gardens owners hold a number of buildings, which remain in litigation. The 2003 Federal Circuit decision governed only four of the properties and remanded the rest for trial to evaluate the *Penn Central* test, 438 U.S. at 124, and determine damages. The trial court consolidated

ments[57] and *Chancellor Manor* on the basis of takings law. These cases rely on a temporary taking analysis that the Housing Opportunity Program Extension (HOPE) Act, passed March 28, 1996, ultimately results in the effective repeal of LIHPRHA and allows (certain) owners to convert their buildings to market rents.[58]

All of these cases entail extensive estimation of lost rents due to the changing HUD programs, examination and cross-examination of economists, and argument by counsel about economic aspects of both the *Penn Central* test[59] and damages. Most importantly, the decisions in these recent cases cite extensively from the expert testimony.

2. *CIENEGA VIII*[60] EXTENDED *FLORIDA ROCK V*[61] BY ESTABLISHING A BENCHMARK RATE OF RETURN AS THE THRESHOLD OF "SERIOUS FINANCIAL LOSS"[62]

The first of these cases, the 2003 Federal Circuit decision in *Cienega VIII*, clarifies the analytic basis to evaluate frustration of DIBE to establish a temporary taking and conforms measurement of damages for a temporary taking to economic doctrine.

Cienega VIII applies the "diminution in value" prong of the *Penn Central*[63] test as a threshold requirement and concludes that plaintiff must "show 'serious financial loss' from the regulatory imposition in order to merit compensation."[64] *Cienega VIII* relies on plaintiff economist's estimate of annual earnings after the regulatory imposition from *Cienega III*, $45,741, benchmarks this amount to plaintiff's equity, $17,452,045, and computes plaintiff's yield on investment, 0.3 percent, to determine that plaintiff's loss of return was sufficient to be a "serious financial loss."[65] Cienega Gardens' yield on its "model properties"[66] under evaluation was compared to a conservative benchmark for opportunity cost of capital in the trial record, yield on Fannie Mae long bonds, 8.5 percent, to ascertain that returns after regulatory change

Cienega Gardens with *Chancellor Manor* and trial testimony was taken in November through December 2004. *Cienega Gardens*, 67 Fed. Cl. at 434. The first group was decided for the plaintiffs in the Court of Federal Claims on August 29, 2005. *Id.*

57. Independence Park Apartments v. United States, 61 Fed. Cl. 692 (2004).
58. Pub. L. No. 104–120.
59. *Penn Cent.*, 438 U.S. at 124.
60. Cienega Gardens v. United States, 67 Fed. Cl. 434 (consolidated with Chancellor Manor v. United States (Fed. Cl. 2005)).
61. *Fla. Rock*, 45 Fed. Cl. at 21.
62. *Cienega Gardens*, 67 Fed. Cl. at 434.
63. *Penn Cent.*, 438 U.S. at 131.
64. *Cienega Gardens*, 331 F.3d at 1340.
65. *Id.* at 1342 (citing Cienega Gardens v. United States, 38 Fed. Cl. 64, 75 (1997)).
66. *Id.* at 1347.

were inadequate to recoup investment plus earn a reasonable return.[67] The Fannie Mae benchmark, 8.5 percent, was adopted as a conservative value based on testimony in the case.[68]

Cienega VIII[69] follows *Florida Rock V*[70] in deciding that diminution in value of the property is not dispositive of the magnitude of the economic impact; diminution alone is not enough to reveal whether economic viability has been destroyed.[71] *Cienega VIII* establishes that economic viability must be measured with reference to both recoupment of investment and return on investment in order to evaluate a standard financial performance measure.[72] This establishes opportunity cost of investment as an attribute of the investment in the property, consistent with economic theory.[73] Further, *Cienega VIII* makes clear that profit, meaning recoupment of the investment plus a reasonable return, is a factor to consider in assessing economic impact of a regulation.[74] Investors distinctly expect to make a profit. No reasonable investor/owner would tie up her money in the risky apartments if she could not earn

67. *Cienega VIII*, 331 F.3d at 1340:

> By comparing this rate of return to low-risk Fannie Mae bonds, which, according to Dr. Peiser, would have generated an 8.5% rate of return, we can make a rough estimate of the Model Plaintiffs' percentage loss of return. Indeed, doing so, we calculate that the Model Plaintiffs would have received, by exiting the programs and reinvesting their money, on average, *at least*, 28 times greater return than they did have by being forced to stay in the programs. (An 8.5% rate of return is about 28 times more than a 0.3% rate of return.)

Exactly how to perform the financial calculation undertaken by Circuit Judge Michel in *Cienega VIII* became a question of the experts in the follow-on December 2004 Cienega Gardens and Chancellor Manor trial.

68. *Cienega Gardens*, 331 F.3d at 1343 n.39.

> Thus, although our calculation is only a rough one, because we are using the most conservative basis for comparison offered to us—in their brief, the plaintiffs suggest that we could also compare their rate of return with a 20% rate of return that they maintain corresponds to real estate investment. . . .

Id.

69. *Id.* at 1319.

70. *Fla. Rock*, 45 Fed. Cl. at 21.

71. *See Cienega Gardens*, 331 F.3d at 1319.

72. *Id.* at 1333.

73. *Id.* Economists and financial practitioners speak of the opportunity cost of capital, meaning the return from the next best opportunity foreclosed by the investor's decision. Cost of capital is the required return by investors; it is the basis for the discount rate, and is based on the risk of the cash flows and underlying financial market conditions. John Maynard Keynes defined investment as the right to obtain a series of prospective returns during the life of the asset. Keynes emphasized the expected profitability of investments as the key motivating determinant for investment. John Maynard Keynes, General Theory of Employment, Interest, and Money 135, 225 (Harcourt, Brace & World eds., 1936).

74. *Cienega Gardens*, 331 F.3d at 1319.

at least as much as her next best opportunity. *Cienega VIII* determined a taking occurred and awarded damages.[75]

A competitive market rate of return is a better benchmark than Fannie Mae bond yield because Fannie Mae, an agency of the government, provides securities with lower risk than private parties face in their investment alternatives. Typically, investors do not consider a Fannie Mae security as their opportunity cost of investment. In the subsequent trial of other Cienega Gardens and Chancellor Manor properties in the same line of cases, plaintiff's experts testified to 11 to 14 percent as more appropriate benchmarks for opportunity cost of capital invested in similar investment grade apartment buildings during the period of the taking.[76]

3. ECONOMICS ANALYZES REASONABLE EXPECTATIONS CONSISTENT WITH *LOVELADIES HARBOR*

Cienega VIII includes both of the *Penn Central* economic calculations—diminution in value and frustration of DIBE—within the economic impact prong of the *Penn Central* test.[77] *Loveladies Harbor* establishes that the investment-backed expectations prong of the *Penn Central* test is evaluated for reasonableness in the Federal Circuit Court.[78] "The purpose of consideration of plaintiffs' investment-backed expectations is to limit recoveries to property owners who can demonstrate that 'they bought their property in reliance on a state of affairs that did not include the challenged regulatory regime.' "[79] Substantial discussion deals with whether owners' expectation of converting the properties to market rents was "reasonable."[80] The decision concludes, "We, therefore, hold that ELIHPA and LIHPRHA frustrated the Model

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75. *Id.*

76. *See, e.g.*, Testimony of William W. Wade, Penn Central *Tests for Chancellor Manor Properties*, Exhibit PCM 469, in Chancellor Manor v. United States (Nov. 15, 2004). This testimony showed that 14 percent was the appropriate discount rate and adopted 14 percent as the owner's opportunity cost. The government economist argued for differential rates with the effect of reducing his damage estimate. Empirical benchmarks to establish discount rates do not imply that the plaintiff is "entitled" to earn an average return on her real estate investment or a taking has occurred. Rather, empirical discount rates distinguish expected returns from risky investments from lower risk investments in bonds or CDs. *Id.*

77. *Cienega Gardens*, 331 F.3d at 1345, 1353.

78. Loveladies Harbor v. United States, 28 F.3d 1171, 1177 (Fed. Cir. 1994). In 1979, the U.S. Supreme Court ruled in *Kaiser Aetna v. United States*, that the standards of *Penn Central* will be evaluated for reasonable investment-backed expectations. 444 U.S. 164, 174 (1979)(Rehnquist writing for the majority).

79. *Cienega Gardens*, 331 F.3d at 1345–46 (citing *Loveladies Harbor*, 28 F.3d at 1177).

80. *Id.* at 1345–46.

Plaintiffs' reasonable investment-backed expectations that they would be entitled to [convert to market rents.]"[81]

Economics approaches knowledge of regulatory impairment consistent with language in *Loveladies Harbor*:

> [T]he owner who bought with knowledge of [a particular] restraint could be said . . . to have assumed the risk of any economic loss. In economic terms . . . the market had already discounted for the restraint, so that a purchaser could not show a loss in his investment attribu[table] to [the regulatory action].[82]

Investment-backed expectations, whether "distinct" in *Penn Central*[83] or "reasonable" in *Cienega VIII*,[84] must be shown to be frustrated to establish a regulatory taking, i.e., returns must be demonstrated to erode economic viability of the investment in the whole property after imposition of the unanticipated change in regulations.[85] Economic decision rules play an obvious role in determining when a regulation undermines investment-backed expectations sufficiently to award compensation, i.e., when the regulation "goes [so] far" that it crosses a relevant threshold.[86]

Cienega VIII defines that threshold akin to the way that economists and financial practitioners define it—in terms of the relation between the expected returns from the investment and the opportunity cost of the investment.[87] A relevant threshold is not a bright line. Rather, different circumstances move the line and empirical details and assumptions must be sorted out. *Cienega VIII* conforms a case law rule to match economic practice: when the return on investment is less than the opportunity cost of the owners' investment, economic viability is frustrated.[88]

81. *Id.* at 1353.

82. *Loveladies Harbor*, 28 F.3d at 1177.

83. 438 U.S. at 104.

84. *Cienega Gardens*, 331 F.3d at 1345–46 (citing Ruckelshaus v. Monsanto Co., 467 U.S. 986, 1005 (1984); *Loveladies Harbor*, 28 F.3d at 1177).

85. *Kaiser-Aetna*, 444 U.S. at 164, 175, changed "distinct" to "reasonable" for no discernable purpose. This change confounded subsequent courts' views of reasonable expectations vis-à-vis plaintiffs' notice of regulatory prohibitions with reasonable expected return on investments. Recent cases have followed the logic of *Cienega VIII*, applying reasonable investment-backed expectations (RIBE) in context with notice and frustration of investment-backed expectations under the economic impact prong. *Cienega Gardens*, 331 F.3d at 1355. Arguably, the original language meant to measure the economic impact on the claimant by the interference with investment-backed expectations—which is exactly what *Cienega VIII* did. *Id.*

86. *Pa. Coal Co.*, 260 U.S. at 415. See Wade, *supra* note 6, for a discussion of financial decision rules and relevant thresholds.

87. *Cienega Gardens*, 331 F.3d at 1319.

88. *Id.* Former Deputy City Attorney for San Francisco, Andrew W. Schwartz, who argued for the City of San Francisco in *San Remo Hotel*, 125 S. Ct. at 2491, believes to the contrary, "[t]he only workable system of land use regulation is to limit compensation to those categorical, bright line cases of a complete economic wipeout or a

4. *CIENEGA GARDENS/CHANCELLOR MANOR* CONFIRM RETURN ON EQUITY AS THE MEASURE OF ECONOMIC IMPACT FOR A TEMPORARY TAKING

The 2005 *Cienega Gardens/Chancellor Manor* decision reviews the three precedential ways that courts have addressed the economic impact prong of the *Penn Central* test:[89]

- *Keystone Bituminous* compare[s] "the value taken from the property with the value that remains in the property . . ."[90]
- *Florida Rock V* analyzes "owner's opportunity to recoup its investment or better . . ."[91]
- *Cienega VIII*'s return on equity approach compares the annual return on the owners' real equity in their properties to a conservative market return on Fannie Mae bonds.[92]

The 2005 decision in *Cienega Gardens/Chancellor Manor* concludes that "the return-on-equity approach best measures the impact of [lost income during the taking] on the plaintiffs. Measuring an owner's return on equity better demonstrates the economic impact . . . of the temporary taking of income-generating property than . . . the change in fair market value."[93]

Judge Lettow followed *Cienega VIII*, comparing the after return on equity during the period of the taking to the benchmark Fannie Mae bond 8.5 percent rate, to "reveal the comparative financial detriment suffered by [the] plaintiffs."[94] Applying *Cienega VIII*, Judge Lettow calculated a percent diminution in value as the ratio of "after" return on equity to 8.5 percent.[95] For example, for Chancellor Manor's three properties, he calculated from data provided by plaintiff's experts "after returns" on equity of 0.49 percent, 0.74 percent, and 0.81 percent and

physical occupation. The Supreme Court's efforts to find a middle ground have resulted in confusion and inconsistent decisions. . . ." Andrew W. Schwartz, *Reciprocity of Advantage: The Antidote to the Antidemocratic Trend in Regulatory Takings*, 22 UCLA J. OF ENVTL. L. & POL'Y 1 (2004). Federal Claims and Federal Circuit court cases cited in my article clarify part of the Supreme Court's confusion and suggest that more expertise rather than more draconian legal standards will lead to a more democratic outcome.

89. *Penn Cent.*, 438 U.S. at 104; *Cienega Gardens*, 67 Fed. Cl. at 434.
90. 480 U.S. at 497.
91. *Fla. Rock*, 45 Fed. Cl. at 32 (citing to Fla. Rock Indus., Inc. v. United States, 18 F.3d 1560, 1567 (Fed. Cir. 1994)).
92. 331 F.3d at 1342–43.
93. 67 Fed. Cl. at 475 (real equity at the time of taking was calculated as appraised market values at the time of taking less outstanding mortgages and the cost of converting the buildings).
94. *Id.* at 476 (citing tables at 476–77).
95. *Id.*

computed economic impacts of 94.2 percent, 91.3 percent, and 90.5 percent.[96]

While the "return on equity approach" substantially improves the conceptual basis for evaluating the *Penn Central* economic prongs broadly,[97] for future cases, it is important to emphasize footnote thirty-nine in *Cienega VIII.* There, Judge Michel writes,

> We do this [percent diminution] calculation only to have a percentage loss to compare with other takings cases in which a percentage loss was described. A 0.3 percent rate of return may signify a "serious financial loss" with no need to resort to further calculation, but as all of the precedent cited to us involves percentages showing loss, we think it useful to make the further calculation.[98]

Theoretically, the *economic decision rule* is binary: either the project return exceeds the external benchmark for lost opportunity—8.5 percent assumed in these cases—or it does not.[99] For example, if the return after impact of the changed regulation earned, say 3.0 percent, it would not be economically viable for the owner. Although some profit remains, the rational investor would prefer to leave her money at "safe" bank interest or some certain government security than expose it to the risks of property investment to earn only 3 percent.

Unless this problematic calculation of percent diminution of rate of return is removed from precedent, legal errors are likely. For example, if the return after change in regulation were 3 percent, government counsel surely would argue that because this is only 65 percent below the assumed 8.5 percent benchmark, no taking has occurred. Such an argument would make no sense to a disinterested economist who would know that the opportunity cost of investment represents a hurdle rate of return.[100] Returns from the investment must exceed the hurdle rate or the investment is not economically viable. The percent diminution

96. *Id.* at 477–78.

97. *Fla. Rock*, 45 Fed. Cl. at 32. As revealed in *Florida Rock V*, the ratio of returns to real investment basis in the property at the time of the take is dispositive of the degree of impairment of investment-backed expectations, whether arising from a temporary take or a partial take. *Id.* The return on equity approach harkens to the standard in *Nectow* invoked at note 16 and text. *Nectow*, 277 U.S. at 185.

98. *Cienega Gardens*, 331 F.3d at 1343 n.39.

99. Some calculable allowance for uncertain measurement of inputs and assumptions should always be considered.

100. InvestorWord.com, Glossary of Investment Words, http://www.investorwords.com/2362/hurdle_rate.html (last visited Feb. 17, 2006). The hurdle rate is the minimum acceptable rate of return on a capital investment project—the required rate of return in a discounted cash flow analysis, above which an investment makes sense and below which it does not. Often, this is based on the firm's cost of capital or weighted average cost of capital, plus or minus a risk premium to reflect the project's specific risk characteristics. *Id.* Hurdle rate is also called the investor's (firm's) required rate of return for projects of similar risk.

of value *per se* used in numerous earlier cases does not translate to percent reduction in returns. Either rate of return exceeds the hurdle rate or the investment is uneconomic.

For damages, Judge Lettow relies on plaintiff economists' estimates of lost cash flows, overcoming the government economists' argument for before and after change in fair market values of the real property.[101] Before and after real property values have no relevance to a temporary loss of income due to loss of property use. Appraisal values at the second point in time will reflect exogenous market forces unrelated to temporary use losses. Property values may even be higher. A change in fair market value due to the temporary taking relying on appraisals at the two points in time uses the wrong tool, comparable sales, aimed at the wrong "stick" of the property right, the tangible asset. Theoretically, the preferred way to value damages for a temporary taking of income producing property is to calculate the change in profits using a cash flow model taught in first year finance courses. The loss is the cash flows from the use of the property during the time period of the taking. The lost use of invested amounts can only be restored by payment of damages. The fact that a parcel retains its tangible asset value is irrelevant.

5. *ROSE ACRE FARMS* EMPHASIZES THE NEED FOR CONSISTENT TAKINGS JURISPRUDENCE

Another interesting temporary takings case decision came down from the Court of Federal Claims in 2004 just before *Cienega VIII* appeared in the Federal Circuit Court.[102] *Rose Acre Farms*[103] reveals the need to impose rigorous consistency to the *Penn Central* test.[104] Rose Acre Farms complained about its temporary loss of egg production due to government restrictions.[105] Plaintiff economist demonstrated substantial revenue losses due to foregone egg production, but never benchmarked the losses to any denominator value, the necessary comparison to evaluate frustration of investment-backed expectations.[106] The trial court found a taking of plaintiff's eggs and awarded damages.[107] The Federal Circuit Court reviewed the case on appeal by the government and, citing to both the plaintiff's and government's testimony on losses,

101. *Cienega Gardens*, 67 Fed. Cl. at 476–77 (see discussion of economists' testimonies).
102. *Cienega Gardens*, 331 F.3d at 1319.
103. *Id.*
104. *Penn Cent.*, 438 U.S. at 124.
105. Rose Acre Farms, Inc. v. United States, 55 Fed. Cl. 643 (2003).
106. *Id.* at 646.
107. *Id.*

determined succinctly: "This analysis was insufficient . . . [N]either the testimony nor the economic data cited by the trial court appropriately gauge the severity of the economic impact of the regulations on Rose Acre."[108]

Rose Acre's partial loss of income for a temporary period must be benchmarked to its real equity in the enterprise at the time of the taking in order to evaluate whether investment-backed expectation was reduced sufficiently to warrant compensation based on the *Penn Central* test. Plaintiff's economist merely calculated damages and performed no analysis of the *Penn Central* economic prongs.[109] This inconsistent analysis demonstrates the need for consistent takings jurisprudence so that judges and lawyers can consistently apply the law.

C. Independence Park *and* Tulare Lake *Eliminate Bias of Court Sanctioned Interest Rates*

1. *Independence Park* Corrects the Notion of FRV as a Basis for Damages for a Temporary Taking

Independence Park[110] confirms damages as the present value of lost profits in the same way as *Cienega VIII.*[111] This approach accurately measures the value of the lost use of the property due to the temporary taking and corrects a whole line of temporary takings cases that mistakenly calculate damages as a notion of fair rental value for a temporary taking.[112] Judge Lettow rejected "the government's proposed [approach to damages that sought] to compensate plaintiffs only for the *interest* on the foregone net rents and exclude any compensation for the foregone net rental income itself"[113]—risk-free interest rates at that. The failing of this approach to fair rental value exactly mirrors the deficiency seen in *SDDS v. State* and *Bass Enterprises v. United States.*[114]

108. Rose Acre Farms, Inc. v. United States, 373 F.3d 1177, 1185 (Fed. Cir. 2004).

109. *Rose Acre Farms*, 373 F.3d at 1179; *see Penn Cent.*, 438 U.S. at 124.

110. Independence Park Apartments v. United States, 61 Fed. Cl. 692 (2004).

111. Cienega Gardens v. United States, 331 F.3d at 1319; *see Independence Park Apartments*, 61 Fed. Cl. at 692 (this case is an offshoot of *Cienega VIII*, which decided that plaintiff suffered a temporary taking. Damages were the only issue).

112. *See Kimball Laundry*, 338 U.S. at 9–11 (discusses the deficiencies of fair rental value (FRV) for measuring intangible values of a going concern. In view of this fifty-six year old Supreme Court decision, I do not know why FRV continues to be applied in place of lost profits in notable cases such as *Bass Enter. v. United States*, 48 Fed. Cl. 621 (2001) (*Bass IV*); *Miller Bros. v. State Dep't of Natural Res.*, 513 N.W. 217, 223–24 (Mich. Ct. App. 1994); *SDDS Inc. v. State*, 650 N.W.2d 1 (S.D. 2002). At best, FRV can only provide a floor to plaintiff's damages, ignoring the return of plaintiff's management skills and value of the ongoing business, or in the language of Kimball Laundry, "trade routes." *Kimball Laundry*, 338 U.S. at 1.

113. *Independence Park Apartments*, 61 Fed. Cl. at 706.

114. *See* SDDS, Inc. v. State, 650 N.W. 2d 1, 19 n. 15 (S.D. 2002) (for details of

Independence Park, a temporary taking case like *Cienega VIII*, sets the valuation date as the end of the taking period for calculation of damages.[115] Typically, damages in permanent takings cases are benchmarked to the taking date, i.e., for a temporary taking, the starting point of the delay. In most courts, damages are calculated for a benchmark date far removed from time of trial, or even further removed from date of payment. When calculating damages for a taking, lost profits are therefore discounted back to the starting point with a discount rate appropriately including a risk premium and then, typically, compounded forward to a payment date with a court-sanctioned "risk-free" (lower) interest rate. The result is a payment to plaintiff biased lower than an amount that would restore the "full and perfect equivalent [in money] of the property taken."[116]

In a perfect world, the temporal perspective has no effect on the value of the damages paid to plaintiff—assuming that the discount rate is identical to the interest rate.[117] An unbiased estimate of just compensation can be determined by benchmarking at either the start point or end point of the taking. The problem is that courts mistakenly apply interest on damages at a rate lower than the discount rate used to determine damages. The notion supporting this approach has been that payment of prejudgment and post-judgment interest is virtually assured and therefore should carry a lower interest rate to reflect lower risk. The correct theory should reflect plaintiff's opportunity loss by not having the damage award, not the government's interest rate. Benchmarking the damages to the end point reduces the bias against plaintiff if the court awards interest at some lower court-sanctioned rate.[118]

the interest on losses approach to calculating fair rental value). SDDS followed (*Bass III*) the measure of damages . . . was "the interest [plaintiff] would have earned on oil and gas profits during . . . the delay." *Id.* at 16; *Bass Enter.*, 48 Fed. Cl. at 621.

115. *Independence Park Apartments*, 61 Fed. Cl. at 709–10.

116. Seaboard Air Line Ry. v. United States, 261 U.S. 299, 304 (1923).

117. *See, e.g.*, Testimony of William W. Wade, Rebuttal Exhibit PCM 475, in Chancellor Manor v. United States (Dec. 9, 2004); *Cienega Gardens*, 67 Fed. Cl. at 477.

118. The United States appealed the *Independence Park* decision to the U.S. Court of Appeals for the Federal Circuit on March 15, 2005. One of the government's claims is that the trial court erred in calculating the amount of compensation due plaintiffs based on the value of their property interests at the *end* of the temporary takings period, rather than at the beginning of the taking. Respondent's brief retorts that "[i]t would be bizarre for the law to require that just compensation be measured at the beginning of the temporary taking period, when neither the parties nor the court can know with certainty what was taken." Brief of Respondent at 37, Independence Park Apartments v. United States, 61 Fed. Cl. 692 (2004) (May 10, 2005) (the issue raised by the government is the standard defendant objective to discount cash flows back at a risk-weighted discount rate (10 percent) and then compound forward damages at the court's risk-free rate (6 percent)). Plaintiff expert's testimony in *Independence Park* cited in the brief succinctly summarizes the economic principle misconstrued by government counsel, "If you bring the market rate cash flows back to 1992 [start of taking] at 15

2. RISK FREE INTEREST RATES DO NOT PROVIDE JUST COMPENSATION—AND *TULARE LAKE*[119] CONFORMS LAW TO ECONOMICS

Independence Park[120] adopted the finding in a related Federal Claims Court case, *Tulare Lake*, that the interest rate on damages awarded should be based on what a reasonably prudent plaintiff would have done with the cash flows had it not been disrupted by the taking.[121] This ruling eliminates the downward bias in the amount of damages actually paid to plaintiff.

Tulare Lake confirms that the purpose of interest rates or discount rates is to assure that just compensation remunerates the owner of the property not only for the value of the property on the date of the taking, but also for any delay in payment of that amount.[122] The trend is for courts to set interest rates on awarded damages based on a risk free rate of return. Indeed, the Court of Federal Claims entered a judgment of damages for Tulare Lake Basin on December 31, 2003, originally setting the interest rate based on the low yield one-year Treasury bill.[123] Plaintiffs filed a motion for reconsideration on February 26, 2004, and asked the court to reconsider its December 31, 2003, determination that "the statutory [one-year Treasury bill] rate specified in 40 U.S.C. § 258e-1 (2000) is the appropriate interest rate required to provide full just compensation in this case. Plaintiffs submit that this determination is based upon an error of law and fact so manifestly erroneous that, if unexamined, will work a grave injustice to plaintiffs."[124]

The economic standard is not and has never been that risk free interest rates apply because government payment is virtually assured, as argued typically by defendant counsel. As a matter of economics, just compensation should keep plaintiff whole, which means that the plaintiff's demonstrable opportunity cost of capital is the correct basis for interest payments on damages—which is exactly what *Tulare Lake* decided on reconsideration.

percent and then [compound the result] forward from 1992 to 2004 at a ridiculously low rate . . . you're building in an enormous prejudice against the plaintiffs."

119. *Tulare Lake*, 61 Fed. Cl. at 626.

120. *Independence Park Apartments*, 61 Fed. Cl. at 716.

121. *Tulare Lake*, 61 Fed. Cl. at 626, 630–31.

122. *Id.* at 627–29 (citing and relying upon NRG Co. v. United States, 31 Fed. Cl. 659, 664 (1994); *Seaboard Air Line Ry.*, 261 U.S. at 299).

123. Tulare Lake Basin Water Storage Dist. v. United States, 59 Fed. Cl. 246 (2003).

124. Memorandum in Support of Plaintiff's Motions for Reconsideration in Tulare Lake Basin Water Storage Dist. v. United States (Feb. 24, 2004) (on file with author).

III. Conclusion: Federal Claims and Federal Circuit Courts Apply, Measure, and Evaluate the *Penn Central* Test[125] and Estimate Damages Consistent with Standard Economic Practice

Although the Supreme Court has not clarified the economic determinants of the *Penn Central* test,[126] the Federal Claims and the Federal Circuit Courts have defined, measured, and evaluated the economic underpinnings of partial takings and temporary takings. Cases post *Cienega VIII* discussed in this article apply the framework of the *Penn Central*[127] test and clarify how to measure and evaluate economic variables, notably return on investment, to determine frustration of DIBE. In doing so, these two courts conform legal practice to standard economics and finance.

In view of the confusion in so many state courts arising from the lack of clarification from the U.S. Supreme Court, the jurisprudence from these two federal courts provides sufficient guidance to enable courts and lawyers to consistently evaluate takings claims. The Coursen article reveals that before *Florida Rock V*, the Federal Claims Court and the Federal Circuit Court still wondered how much diminution in value constituted a compensable taking,[128] a standard eliminated by *Florida Rock V* as not dispositive of the degree of interference with DIBE.[129]

By its repeated reliance on the *Penn Central* test,[130] the U.S. Supreme Court clearly implies that regulatory takings do not require that all value be eliminated before a citizen is entitled to compensation. The Court needs only to adopt the lessons learned in the Federal Claims Court and Federal Circuit Court cases since 1999 to establish "a predictable legal standard [from] the famously muddy language of the *Penn Central* decision."[131] The *Penn Central* test, properly measured and evaluated,

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125. *Penn Cent.*, 438 U.S. at 124.
126. *Id.*
127. *Id.*
128. *See Fla. Rock*, 45 Fed. Cl. at 21.
129. *Id.*
130. *Penn Cent.*, 438 U.S. at 124.
131. Echeverria, *supra* note 4, at 11,235. The full quote from John Echeverria's article is worth repeating.

> But the [*Tahoe-Sierra*] decision provides little guidance on what the *Penn Central* test actually is or how it should be applied. A future challenge for courts and litigants will be to create a predictable legal standard out of the famously muddy language of the *Penn Central* decision. Despite the Supreme Court's recent, intense focus on the regulatory takings issue, regulatory takings doctrine is in some ways as tentative and uncertain as it was after *Penn Central* was decided nearly twenty-five years ago.

serves the function originally intended of defining when "too far" constitutes a taking.[132] But the calculations have to be evaluated based on standard financial practices and case law—as these Federal Claims and Federal Circuit Court cases currently do. To achieve good public policy, this line of cases needs to become the fabric of broader jurisprudence to inform legal practitioners and jurists.

Recent cases discussed in this article sideline four poor economic applications:

- Economic returns benchmarked to owner's equity basis and the opportunity cost of capital replaces percent diminution in value as the guiding *Penn Central* prong.[133]
- Value of lost profits replaces fair rental value to measure damages from lost use.
- Lost profits measure lost use value, not the change in fair market value of the real property.
- Owner's demonstrably prudent lost opportunity return on invested capital replaces court-sanctioned low interest rates.

The cases discussed in this article from the Federal Claims Court and Federal Circuit Court, guided by economic practitioners, apply economic evaluation methods and formulas to elucidate the language and format of the *Penn Central* test.[134] The following table summarizes the case decisions and economic methods affected by those decisions.

Economic Advances Governing Takings Evaluations and Damages

Date	Case	Legal Decision	Economic Implication
Supreme Court Takings Decisions Advancing Economic Inquiry			
1949	*Kimball Laundry*	Compensate value of lost trade routes, not simply fair rental value.	Estimate intangible lost use values of ongoing concern as part of damages.[135]
1978	*Penn Central*	Set 3-prong test including economic impacts and frustration of DIBE applied to property as a whole.	Economic impacts and frustration of DIBE measurable with standard financial tools to establish loss.[136]

132. *Pa. Coal Co.*, 260 U.S. at 393.

133. *Penn Cent.*, 438 U.S. at 124.

134. *Id.*

135. But, fair rental value did not disappear from court practice even though *Independence Park* applies a definitive ruling that lost profits best reflect the foregone value of a going concern. *Independence Park Apartments*, 61 Fed. Cl. at 692.

136. So I say; but few courts beyond the cases discussed in this article apply the clarity that economic tools provide. *Whitney Benefits* is another Federal Claims Court case that relies on standard economic methods. Whitney Benefits, Inc. v. United States, 18 Cl. Ct. 394 (1989), *aff'd*, 926 F.2d 1169 (Fed. Cir. 1991).

Date	Case	Legal Decision	Economic Implication
1980	*Agins*	Taking implies denial of "economically viable use."	Returns sufficient to recoup investment and provide reasonable return.[137]
	Fed. Cl. and Fed. Cir. Court Decisions Advancing Economic Inquiry		
1999	*Florida Rock V*	Denominator = inflation adjusted investment basis in the property and not before value.	Established evaluation of recoupment of investment as the benchmark of the taking.[138]
2003	*Cienega VIII*	Serious economic loss = rate of return lower than external opportunity benchmark return.	Established evaluation of return on investment w/r to opportunity cost of capital; i.e., reasonable expectations imply return of investment and reasonable profit.[139]
2004	*Independence Park*	Damages = lost profits and not fair rental value; damages measured at end date of temporary taking.	Set net present value of lost profits as value of lost use. End point benchmark reduces chance of bias against plaintiff.[140]
2004	*Tulare Lake*	Interest on damages = prudent investor's foregone opportunity.	Eliminates faulty legal theory that low risk or risk free interest rates apply to damages. Interest on damages due at owner's lost alternative.[141]
2005	*Cienega Gardens/ Chancellor Manor*	Serious economic impact = rate of return lower than external opportunity benchmark return; damages = lost profits and not change in fair market value.	Followed *Cienega VIII* and *Independence Park* to confirm appropriate concepts to measure.[142]

137. But "economically viable use" has never been adequately defined or measured outside of the Federal Claims and Circuit cases discussed in this article. *Agins*, 447 U.S. at 260.
138. *Fla. Rock*, 45 Fed. Cl. at 64.
139. *Cienega*, 331 F.3d at 1319.
140. *Independence Park Apartments*, 61 Fed. Cl. at 692.
141. *Tulare Lake*, 61 Fed. Cl. at 624.
142. *Cienega Gardens*, 67 Fed. Cl. at 434.