

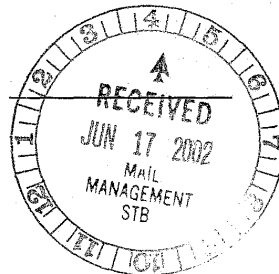
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June 17, 2002

VIA HAND DELIVERY

The Honorable Vernon A. Williams
Secretary
Surface Transportation Board
1925 K Street, NW
Room 704
Washington, D.C. 20423

ENTERED
Office of the Secretary

JUN 17 2002

Part of
Public Record

**RE: *Government of the Territory of Guam v. Sea-Land Service, Inc.
and Matson Navigation Company, Inc.***
STB Docket No. WCC-101

Dear Secretary Williams:

Enclosed please find an original and eleven copies of Defendants' Reply in Phase II -- Appropriate Standards of Rate Reasonableness to be filed in the above-referenced docket. Also enclosed are three 3.5-inch computer disks, each of which contains a copy of the enclosed Reply. In accordance with the STB Final Rule in Ex Parte 576, Electronic Access to Case Filings, the original is not bound, but clipped with no tabs; however, the ten copies enclosed for Board Member and staff review are bound and contain tabs.

A copy of this letter and the enclosed materials has been served on each party of record. Please acknowledge receipt and filing of the enclosed material by stamping the eleventh copy of this letter, which is enclosed for that purpose, and returning it to the individual making this filing for return to me.

Yours very truly,

C. Jonathan Benner

Enclosures

cc: Parties of Record

Government of the Territory of Guam,

Complainant,

v.

Sea-Land Service, Inc.,
And Matson Navigation Company, Inc.,

Defendants.



Docket No. WCC-101

**DEFENDANTS' REPLY IN PHASE II –
APPROPRIATE STANDARDS OF RATE REASONABLENESS**

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June 17, 2002

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INTRODUCTION AND SUMMARY

On April 23, 2002, the Government of Guam ("GovGuam"), Defendants Sea-Land Service, Inc. ("Sea-Land") and Matson Navigation Company, Inc. ("Matson") and Intervenor Caribbean Shippers' Association ("CSA") each filed their initial submissions in Phase II of this proceeding. In their submission, Matson and Sea-Land made the following points:

1. The "base rates" at issue in this case must be the rates in effect on September 10, 1996, in order to give meaning and effect to the Zone of Reasonableness in 49 U.S.C. § 13701(d)(1).
2. There is no reasonable methodology for determining the reasonableness of the totality of a carrier's rates in the Guam trade that could provide a remedy to shippers that would be both reasonable and meaningful, given the wide range of rates in the trade and the wide range of transportation circumstances applicable to those rates.
3. If the Board nevertheless concludes there is a reasonable methodology for assessing rates in the aggregate, it should apply the Constrained Market Pricing principles developed by the Board and the Interstate Commerce Commission to assess railroad and pipeline rates.
4. Constrained Market Pricing principles and the Board's precedents require that the Board first determine whether or not there was effective competition in the Guam trade in September 1996; and if it finds there was effective competition, it should terminate the proceeding.

5. Given the strong prima facie case that there was (and still is) effective competition in the Guam trade, the Board should bifurcate Phase III of the proceeding into two parts, and should first only consider evidence bearing on the issue of whether there was effective competition.
6. If the Board determines there was not effective competition in the Guam trade in September 1996, it should determine the reasonableness of the totality of the carriers' rates by application of the Stand-Alone-Cost methodology.
7. The Board should not apply the G.O. 11 methodology applied by the Federal Maritime Commission ("FMC") to assess the reasonableness of Sea-Land and American President Lines rates in effect in 1987-1991. A cost-based methodology like G.O. 11 is inconsistent with ICCTA and would have particularly perverse results in a two-carrier trade like Guam.

GovGuam's Initial Submission urges the Board to adopt and apply G.O. 11 as the methodology for determining the reasonableness of the Defendants' aggregate rates.

In this Reply, Defendants Matson and Sea-Land wish to make the following points about GovGuam's Initial Submission:

First, GovGuam makes no attempt to identify the "base rates" that are at issue in this case and says nothing to rebut our showing that they must be the rates in effect on September 10, 1996.

Second, GovGuam completely ignores the issue of whether the methodology it urges can provide a basis for a reasonable remedy to shippers; as in previous pleadings, GovGuam remains conspicuously silent as to what remedy it believes would be appropriate.

Third, GovGuam's filing strongly supports the Defendants' contention that, before attempting to assess the reasonableness of the Defendants' aggregate rates under any methodology, the Board must first determine whether there was effective competition in the Guam trade during the relevant time.

Fourth, GovGuam's submission does not contradict, and in fact supports, the Defendants' contention that there is a strong prima facie case that there was effective competition in the Guam trade.

Fifth, GovGuam's critique of Constrained Market Pricing is without merit, as demonstrated in the attached verified statement of John C. Klick (hereinafter, "Klick V.S.").

Sixth, GovGuam's arguments in favor of G.O. 11 are without merit, as demonstrated in the attached verified statement of Dr. Lawrence Kolbe (hereinafter, "Kolbe V.S."). GovGuam urges the Board to adopt the G.O. 11 that the FMC applied in its 1998 decision concerning Sea-Land and APL rates in effect in 1987-1991.¹ Its main argument is that this methodology is "tried and true" and "this is not the time to experiment with new methodologies" (GovGuam Init. Sub. at 12), although the witness on whom it mainly relies, Mr. Nadel, contends, quite inconsistently, that the Board should make some significant changes to the version of G.O. 11 the FMC applied in its 1998 decision. As we will show, there is no merit to any of the versions of G.O. 11 proposed by GovGuam, by Mr. Nadel or by Intervenor Caribbean Shippers Association.

¹ The FMC's 1998 decision concerning Guam rates is reported at *Government of the Territory of Guam v. Sea-Land Service, Inc. and American President Lines, Ltd.*, 28 S.R.R. 252 (FMC 1998).

ARGUMENT

I. THE BASE RATES AT ISSUE ARE THOSE IN EFFECT ON SEPTEMBER 10, 1996.

In their initial submission, Matson and Sea-Land showed that the “base rates” that are put in issue by GovGuam’s complaint must be those in effect on September 10, 1996 – two years before the date the complaint was filed – if the Zone of Reasonableness established by 49 U.S.C. § 13701(d) is to have any meaning and effect.

In the narrative portion of GovGuam’s initial submission, GovGuam does not discuss this issue and makes no attempt to identify the base rates it is challenging. The only reference to base rates in GovGuam’s entire submission is the following cryptic statement on page 15 of Mr. Nadel’s statement:

The time frame at issue here, in GovGuam’s complaint, is September 10, 1996 to September 10, 1998. This is the period for which “base freight rates” are to be established.

Mr. Nadel offers no further explanation of this statement, and it makes no sense. In its November 15, 2001 decision, the Board held that Congress did not intend to preclude shippers from challenging a carrier’s “bases rates.” Decision at 9. But under the scheme of the statute, a challenge to a carrier’s base rates must be with reference to a single set of rates that are in effect at a single point in time. Otherwise, the mechanism Congress enacted in 49 U.S.C. § 13701(d)(1) could not function. That section provides that a rate shall be deemed reasonable as a matter of law if it is not more than 7.5 percent above (or 10 percent below) “the rate” in effect one year earlier. If Congress intended to permit shippers to challenge “base rates,” as the Board held, the concept of “base rates cannot embrace different rates or sets of rates that were in effect over a “time frame” of two

years' duration.² If the rates in effect on September 10, 1996 (whether assessed individually or in the aggregate) were reasonable, then § 13701(d)(1) makes all rates for the same services in effect on September 10, 1997 reasonable as a matter of law if they were no more than 7.5 percent above the rates for the same services in effect on September 10, 1996. A shipper that challenges the rates in effect on September 10, 1996 (as GovGuam has) cannot also claim that rates in effect on September 10, 1997 are also "base rates" that it can challenge as well. To allow a shipper to do so would completely negate the protection that Congress gave to carriers in § 13701(d)(1).

II. GOVGUAM HAS FAILED TO SHOW THAT THE METHODOLOGY IT URGES CAN PROVIDE A REASONABLE REMEDY TO SHIPPERS.

In Defendants' initial submission, we submitted that there is no methodology for determining the reasonableness of Guam rates in the aggregate that could provide the basis for a remedy to shippers that was both meaningful and reasonable, given the enormous variation in rates and shipping conditions. We noted that it is at least incumbent on the complainant to demonstrate that such a remedy could be fashioned before the Board investigates the complaint further.

Like its previous pleadings, however, GovGuam's initial submission remains conspicuously silent on the remedy it believes would be appropriate in the event the Board found that the bases rates of one or both of the carriers' were unreasonable in the aggregate.

² Many, if not most, of the Defendants' rates in the Guam trade varied widely over the two-year period from September 10, 1996 to September 10, 1998. As Mr. Wilson explained in the statement included with the Defendants' initial submission, since Matson entered the Guam trade in February 1996, it has made approximately 3,400 changes to particular rates, the vast majority of which were rate reductions. Wilson V.S. at 2.

III. GOVGUAM'S INITIAL SUBMISSION SUPPORTS THE PROPOSITION THAT THE BOARD MUST FIRST DETERMINE WHETHER THERE WAS EFFECTIVE COMPETITION IN THE GUAM TRADE.

In Defendants' initial submission, we showed that, if the Board concludes that there is a reasonable methodology for assessing the reasonableness of rates in the aggregate, basic ratemaking principles and the Board's precedents would require the Board initially to determine whether there was effective competition in the Guam trade in September 1996 before considering evidence on the reasonableness of the rates. *See, e.g., CF Industries v. Koch Pipeline Co*, 2 S.T.B. 257, 263 (served May 14, 1997), where the Board held: "[S]ound regulatory policy allows the marketplace to determine the most efficient level of prices where competition is sufficient to prevent the exercise of market power. If the market is effectively competitive, then agency action can only distort the economically efficient rate(s). . . . Therefore, as is our practice in the area of railroad rate regulation, we will not exercise our rate prescription authority where effective competitive alternatives prevent a carrier from exercising any unreasonable degree of market power."

GovGuam's initial submission supports this approach. GovGuam states that its submission "incorporates the views of two leading regulatory economists," Dr. Nadel and Mr. Burris. GovGuam Init. Sub. at 5. Dr. Nadel, in arguing that the Board should adopt a modified G.O. 11 methodology, states: "G.O. 11 is built on two fundamental premises." Nadel V.S. at 5. The first of these premises is "that traditional utility rate regulation, in which the carrier is assured actual cost recovery plus a return of capital, is most appropriate where there is insufficient actual competition or potential competition to control prices to captive customers. . . ." *Id.*

In other words, whether the Board adopts and applies Constrained Market Pricing (as Defendants propose) or some version of G.O. 11 (as GovGuam proposes), all parties agree that the application of the rate reasonableness methodology they propose is appropriate only in situations where, to use Dr. Nadel's words "there is insufficient actual competition or potential competition to control prices to captive customers." This is consistent with the Boards rulings, in *Koch Pipeline* and other cases, that it must initially determine whether there is effective competition in the relevant market before embarking on an evaluation of rates on the basis of some regulatory methodology.³

IV. GOVGUAM'S INITIAL SUBMISSION DOES NOT CONTRADICT, BUT IN FACT SUPPORTS, THE CONCLUSION THAT THERE IS A STRONG PRIMA FACIE CASE THAT THERE WAS EFFECTIVE COMPETITION IN THE GUAM TRADE IN SEPTEMBER 1996.

GovGuam contends that there has never been effective competition in the Guam trade, despite the fact that Guam has always been served by at least two U.S.-flag carriers providing a weekly scheduled service from the U.S. and by numerous foreign-flag vessels serving Guam from non-U.S. points. But its submission provides no substantial support for this contention, other than GovGuam's own filings with the Department of

³ The second "fundamental premise" underlying G.O. 11, according to Dr. Nadel, is "that, in this case of joint product economies, where Guam is served jointly with the rest of the cargoes carried on the voyage round trip, cost allocation issues must be addressed." An apt rejoinder to this statement is the ICC's observation in *Coal Rate Guidelines*, 1 I.C.C.2d 520, 556 (1985): "'Ramsey pricing is a significant improvement over traditional methods of rate regulation, which involved arbitrary allocations of 'unattributable costs' among various rail services. These methods have created serious economic distortions, causing harm to shippers and railroads as a result.'" As Dr. Kolbe explains (Kolbe V.S. at 5, 25), the arguments of GovGuam and Dr. Nadel rest on precisely such arbitrary cost allocations. They arbitrarily attribute the bulk of the carriers' costs of a roundtrip voyage to what they arbitrarily designate as the "fronthaul" and thereby argue that the service to Guam (which they arbitrarily label as the "backhaul") is virtually cost free and therefore "gravy."

Transportation, the opinion of Dr. Nadel, , various other uncited sources (see, e.g. GovGuam Init. Sub. at 17, n. 21) and frequent use of a convenient pejorative -- "duopoly."

Significantly, although GovGuam liberally cites its own 1996 comments to DOT concerning competition in the Guam trade, it largely ignores DOT's 1997 report on the same subject. In fact the only reference to the DOT report in GovGuam's submission is the passing comment that "the Department of Transportation issued a report which concluded, *inter alia*, that there is a high degree of concentration of carrier service in the Guam trade and that tariff filings be retained." GovGuam Init. Sub. at 18. But the degree of concentration noted by DOT does not suggest any conclusion that effective competition is lacking in the trade; it merely reflects the fact that the market is served by only two U.S.-flag carriers.⁴

The findings in the 1997 DOT report that *are* relevant to the degree of competition in the trade can be found in the "inter alias" that GovGuam notes but declines to identify. These include the following findings:

- Guam has always had scheduled shipping services from the U.S. mainland by at least two U.S. flag carriers at any particular time. Since 1972, seven companies have provided such services, and five of those have left the trade. *1997 DOT Report* at III-15, 18, 19.
- Guam also receives shipping services from foreign-flag carriers based in Asia and Europe, which provide indirect competition to the U.S. flag carriers. *Id.* at III-19.

⁴ As Defendants noted in their initial submission, the Board has not merely found but has *presumed* that two carriers serving markets would be sufficient to provide effective competition. See Defendants' Initial Submission in Phase II at 20-21 and cases there cited.

- “Aggregate freight revenue per container for the U.S. mainland to Guam trade . . . showed a 1995 level of less than 80 percent of the 1990 level, after adjusting for inflation.” *Id.* at III-20.⁵
- No general rate increase has been taken in the trade in recent years. *Id.*
- “Excess capacity in the Guam trade has played a major role in preventing shipping rates from increasing.” *Id.* at III-19.

Of equal significance is the fact that the example cited by Dr. Nadel, supposedly to show the effectiveness of G.O. 11, actually demonstrates two very different things: (1) that service by two U.S.-flag carriers *does* ensure effective competition for Guam; and (2) that application of G.O. 11 to the Guam trade would have a perverse effect.

In his statement, Dr. Nadel discusses at some length the service to Guam in the late 1970's, when Guam was served by two U.S.-flag carriers at rates that were then subject to FMC regulation. U.S. Lines served Guam from the U.S. mainland in a “passby” service via Hawaii, and Matson served Guam with a more costly “turnaround” service from U.S. West Coast ports to Guam and back. Nadel V.S. at 13. According to Nadel, in 1978 both carriers charged very similar rates even though “the turnaround carrier, Matson, had far higher costs than did the passby carrier, U.S. lines.” *Id.* In 1978, both carriers applied for a general rate increase. The FMC announced that it would hold a hearing, at which it would presumably assess the proposed general increase under G.O. 11. *Id.*

⁵ Furthermore, as shown by the verified statements submitted with the Defendants’ Initial Submission, since 1996 demand and cargo volumes in the Guam trade have continued to decline significantly, as reflected in the fact that the vast majority of rate changes made by Matson since entering the trade in 1996 have been rate reductions. Wilson V.S. at 2, 4; Miller V.S. 1-4.

According to Nadel, Matson was prepared to justify the proposed general increase under G.O. 11 because of its high cost of service, but U.S. Lines was not, because of its low cost of service. Because U.S. Lines could not justify the proposed general rate increase under G.O. 11, "U.S. Lines withdrew its request for a rate increase." Nadel V.S. at 14. The denouement described by Nadel is highly instructive:

Thereupon, the turnaround carrier, Matson, withdrew its request for a rate increase. The presumptive reason is that if Matson received its rate increase, those rates would be higher than the passby carrier's [*i.e.*, U.S. Lines], and *it [Matson] would lose significant volumes of its cargo. Fearing that outcome, Matson withdrew its request for a rate increase.* Soon thereafter, Matson withdrew from the trade, and was replaced by APL with its own passby service.

Id. (emphasis supplied).

Although Dr. Nadel inexplicably cites this example as showing the "beneficial impact of G.O. 11 in 1978" (Nadel V.S. at 14), what it clearly shows is that the two carriers in the trade were competing very effectively with each other. Despite Matson's significantly higher costs (according to Nadel), the competition between the two carriers resulted in their charging "very similar rates." And when U.S. Lines withdrew its proposed general rate increase, Matson did the same, because otherwise, "it would lose significant volumes of its cargo."

What Dr. Nadel has so carefully described is nothing more nor less than a textbook example of effective competition at work. As the Board, the ICC and the courts have stated many times, "[t]here is effective competition when a carrier will lose 'some or all' traffic to other carriers if it raises rates." *Rail General Exemption Authority – Exemption of Hydraulic Cement*, 1 S.T.B. 875, 878 (1996). *See also CF Industries, Inc. v. STB*, 255 F.3d 816, 821 (D.C. Cir. 2001); *Union Pacific Corp. et al. – Control and Merger – Southern Pacific Transp. Co. et al. (Sub. No. 26)*, 3 S.T.B. 1030, 1045 (1998);

Market Dominance Determinations and Considerations of Product Competition, 365 I.C.C. 118, 129 (1981).

The price competition that Dr. Nadel describes as having existed in 1978 continues to exist in the Guam trade, at least since Matson re-entered the trade in February 1996. That competition and the continued downward pressure on rates since 1996 are described in detail in the verified statements of Mr. Peter Wilson and Mr. Mark Miller, attached to the Defendants' initial submission.

Dr. Nadel's example not only shows the effectiveness of two-carrier competition in the Guam trade, it also shows the perverse effects of applying G.O. 11 to such a trade. The effect as described by Dr. Nadel was to drive one of the two competitors completely out of the market. Although Dr. Nadel for some reason regards that result as "beneficial," we submit that it illustrates instead the correctness of the Board's observation in *CF Industries v. Koch Pipeline*, that "if the market is effectively competitive, then agency action can only distort the economically efficient rate(s). Such ill-advised [regulatory intervention] would contravene the policy to promote adequate, economical and efficient transportation, and to encourage sound economic conditions in transportation." 2 S.T.B. at 263.

As we have stated, whether there was effective competition in the Guam trade in September 1996 is not an issue for the Board ultimately to decide now, in Phase II of this proceeding. It is an issue to be decided in Phase III if the Board concludes, contrary to our submission, that there is a reasonable methodology for determining the reasonableness of widely varying rates in the aggregate. We submit, however, that there is a strong *prima facie* case that there was effective competition at that time, and we

submit that GovGuam's initial submission supports that conclusion. Accordingly, if this proceeding is continued to Phase III, that phase should be bifurcated and the issue of effective competition should be decided first, before proceeding further. *See, e.g., Sierra Pacific Power Co. v. Union Pacific R. Co.*, STB Docket No. 42012, 1998 STB LEXIS 13 (served Jan. 26, 1998).

V. GOVGUAM'S CRITIQUES OF CONSTRAINED MARKET PRICING ARE WITHOUT MERIT.

In defendants' initial submission, we showed that the most appropriate rate reasonableness principles that could be applied to determine the reasonableness of the Guam rates in the aggregate are the "constrained market pricing" ("CMP") principles developed and used by the Board and by the ICC in railroad and pipeline cases (with some modifications). In its initial submission, GovGuam argues, largely on the strength of the testimony of its witness Philip H. Burris, that CMP principles and, in particular, the stand-alone cost constraint, are not appropriate for evaluating rates in this proceeding. As demonstrated in the attached testimony of defendants' expert witness John C. Klick, there is no merit to the arguments advanced by Mr. Burris on this subject.

First, it is not true, as implied by Mr. Burris and contended by GovGuam, that CMP and the stand-alone cost constraint are designed to promote carrier revenue adequacy at the expense of protecting captive shippers. As Mr. Klick explains, the ICC adopted CMP and the stand-alone cost constraint with the explicit goal of achieving what it described as its "dual objectives," namely, "providing railroads the real prospect of attaining revenue adequacy while protecting captive coal shippers from 'monopolistic' pricing practices." Klick V.S. at 12. The stand-alone cost test is designed to protect captive shippers from monopoly pricing by simulating prices that would exist in

competitive markets, which is an appropriate goal in regulating rates in *any* transportation market, including the trade at issue in this proceeding. See Klick V.S. at 12-13. Not only has the Board (and the ICC before it) applied CMP principles in cases *not* involving railroads, but CMP and the stand-alone cost test have been applied by the Board/ICC in precisely the types of circumstances that GovGuam alleges exist in the subject trade (namely, extremely high rates that are much higher than competitive rates and that were established in the absence of competition). Id. at 13-14.

Second, the fact that the Board is not *required* to consider the defendants' revenue adequacy when determining maximum reasonable rates for the Guam trade does not, contrary to Mr. Burris' assertion, provide a reason for rejecting application of CMP and stand-alone costs here. As explained by Mr. Klick, even in the absence of such a revenue adequacy requirement, where, as here, a transportation services is characterized by large amounts of fixed, joint and common costs, and where those costs are shared between services having differing price elasticities of demand, the CMP principles both protect captive shippers from monopolistic prices and provide carriers with an opportunity to earn adequate revenues. Klick V.S. at 14. The discredited fully-allocated cost approach, by contrast, does not accomplish both of those goals; it would prevent defendants from being financially viable over the long run. Id. at 14-15.

Third, even though there is no statutory requirement that the Board find market dominance in order to have jurisdiction over the rates charged in the Guam trade, the Board/ICC has recognized that it is ill-advised for the agency to dictate prices when a market is effectively competitive. Indeed, as Mr. Klick demonstrates, the evolution and major thrust of ICC/Board regulatory thinking over the past twenty years has been to

permit market forces to establish prices in regulated industries to the maximum possible extent. See Klick V.S. at 3-12. Thus, “it makes no sense to undertake an in-depth analysis of maximum reasonable rates for the domestic off-shore trade between mainland U.S. and Guam if effective competition exists in that market.” Id. at 15.

Fourth, there is no merit to Mr. Burris’ contention that the “proportional reduction” method that has been used by the Board to reduce issue traffic rates in cases applying the SAC methodology makes CMP principles, including SAC, inappropriate here. As noted above, CMP and SAC principles are designed specifically to deal with situations where some of the carrier’s traffic moves at highly competitive rates and some of its traffic moves at non-competitive rates.

In sum, the characteristics that GovGuam attributes to the domestic off-shore trade between the U.S. mainland and Guam are precisely those characteristics that led the ICC/Board to determine that CMP and stand-alone cost were preferable to fully-allocated cost-based approaches to establishing maximum reasonable rates.

VI. THE APPLICATION OF FMC METHODOLOGIES TO THIS PROCEEDING WOULD BE A RADICAL DEPARTURE FROM BOARD STANDARDS AND ACCEPTED ECONOMIC PRINCIPLES.

As anticipated in Defendants’ Initial Phase II Submission, GovGuam contends that the Board should adopt some form of a methodology developed by the FMC for prospective review of the lawfulness of General Rate Increases (“GRIs”) in the domestic offshore trades.⁶ GovGuam’s position, as articulated by counsel and by Dr. Ernest Nadel,

⁶ In this section, Defendants address the legal and economic merits of the application of G.O. 11-type, fully distributed cost methodology to water carriers regulated by the Board. We note, however, that GovGuam’s Initial Submission and Dr. Nadel’s Verified Statement are heavily laden with rhetorical flourishes that detract, or at least distract, from efforts to identify the legal and economic principles and standards that should

is that the application of FMC's General Order 11 methodology to the Guam Trade is "time-tested", "tried and true", and "court-sanctioned." GovGuam Init. Sub. at 10. The inconvenient reality for GovGuam and its expert is that the FMC-derived procedures being advocated by GovGuam are none of these things, even at the FMC. The application of G.O. 11 methodology to non-GRI shipper complaints about historic commodity rates was novel when advanced by GovGuam in FMC Docket No. 89-26, a proceeding that, as of this writing, is far from complete. The use of G.O. 11 methodologies to support shipper challenges to a carrier's historic revenue levels has never been sanctioned by any court, anytime, anywhere. The significantly modified version of G.O. 11 advocated by Dr. Nadel has never been considered, even by the FMC.⁷

govern the disposition of GovGuam's complaint. Most of these are best ignored. One deserves mention in passing, lest Defendants be deemed to acquiesce in their negative implications. Both GovGuam (Init. Sub. at 17) and Dr. Nadel (Nadel V.S. at 8) give prominent mention to the phrase "Golden Goose," words mischievously removed from the context of 1991 deposition testimony given by an employee of American President Lines, Ltd. The employee, a Ms. Capers, in response to questions from GovGuam counsel, stated that by the late 1980's rates in non-Guam, Pacific trades had increased to the point that "Guam was no longer the golden goose." Capers Tr. at 138-139, 23 September 1991, FMC Docket No. 89-26. When asked if her remarks indicated that Guam had ever been regarded as a "golden goose," her response was "it may have been thought of that way. I don't have any idea that it was. Because it's expensive to sail to Guam and go out empty." Capers Tr. 139. The sum total of meaning that can be derived from this snippet of deposition testimony is simply that APL employee Lucinda Capers in 1991 did not know if the Guam Trade had ever been a "golden goose" but, if it had, it ceased to be so by 1989. The use of this extract in 2002 by Dr. Nadel and GovGuam in the initial submission distorts its context and meaning and should have no impact on the Board's analysis.

⁷ At least three variants of FMC "G.O. 11" methodology appear to be in play in GovGuam's and intervenor Caribbean Shippers Association's Initial Submissions. From context, it appears that GovGuam and its counsel espouse the version of FMC General Order 11 that governed the FMC's Phase I decision in FMC Docket No. 89-26, *Government of the Territory of Guam v. Sea-Land Service, Inc. and American*

Of greater concern to Defendants, and presumably to the Board, is that these procedures are fundamentally at odds with prevailing economic scholarship and regulatory principles. The extent of the difficulties and tribulations that attend efforts to apply G.O. 11 methodology in an STB-regulated trade are amply described by the accompanying Verified Statement of Dr. Lawrence Kolbe. Dr. Kolbe's statement compellingly places the GovGuam position beyond the boundaries of accepted economic thought and concludes that the procedures advocated by GovGuam are not only inadvisable, but also "would be a waste of society's resources." Kolbe V.S. at 6.⁸ In sum, GovGuam is asking the Board to adopt a moribund and discredited methodology (Fully Distributed Cost or "FDC"), derived from a repealed statute and body of regulations and to apply it to a two-carrier ocean trade that is a relatively small regulated

President Lines, Ltd., 28 S.R.R. 252 (FMC 1998). This context is suggested by GovGuam's descriptions of the methodology as "tried and true" and "time-tested," descriptions that are patently spurious, but that could only apply to G.O. 11 as it existed at the time of the FMC's Phase I decision in Docket No. 89-26, the only case in which G.O. 11 has been used by shipper interests to pursue monetary damages in the absence of General Rate Increases. GovGuam's economic expert, Dr. Nadel, by contrast, advocates substantial revisions to G.O. 11 methodology to accommodate what he sees as "the predominant economics of the Guam pass-by trade. . ." a trade that he considers "unique among the 4 major domestic offshore trades." Nadel V.S. at 29 and discussion at pages 29 - 35. Finally, intervenor Caribbean Shippers Association advances argument that the Board should adopt the last version of FMC General Order 11 accounting principles that were promulgated by the FMC in 1995, immediately prior to the termination of FMC jurisdiction over the domestic offshore trades. For reasons developed more fully in the accompanying testimony of Dr. Kolbe, Defendants oppose all iterations of GovGuam's and intervenor's advocacy of a regime that is thoroughly discredited as a matter of economic principles, that arose under an alien and now defunct statutory regime, and that holds high prospect for wasteful and meaningless regulatory activity that is unlikely to result in effective regulation of a two carrier trade.

⁸ In addition to his own analysis, Dr. Kolbe provides an extensive reference summary of other scholarly comment on the shortcomings of applications of FDC methodology. See Kolbe V.S. at Appendix B.

component of a larger, unregulated operational environment. Far from being “time-tested” and “tried and true”, GovGuam’s position is a radical, untested, retrogressive regulatory approach that presents high risk to consumers and carriers alike. *Kolbe V.S.* at 4, 15, 18, 20-21, and 27.

A. There Is No Judicial Precedent for the “G.O. 11” Approach Advocated By GovGuam.

GovGuam buttresses its advocacy of FMC rate review methodologies by claiming that the FMC’s application of General Order 11 “has consistently been upheld by the United States Court of Appeals for the District of Columbia Circuit.” GovGuam Init. Sub at 10. Two cases are cited for this proposition.⁹ Neither supports GovGuam’s point. Neither case involved an attack on General Order 11 or its FDC methodology and should not be cited by counsel in a context that implies that the severe shortcomings of FDC methodology here identified have been rejected by the federal courts. Rather, both cases illustrate Defendants’ assertions in their Initial Submission that General Order 11 was intended to address prospective review of carrier GRIs under the tight time deadlines of the 1978 Intercoastal Act, 1933 Amendments.¹⁰

The *Matson* case involved conceptual and computational disputes over the FMC’s disposition of a proposed 3.6 per cent General Rate Increase in the U.S. Mainland/Hawaii

⁹ *Matson Navigation Company, Inc. v. FMC*, 959 F.2d 1039 (D.C. Cir. 1992) (cited in text as “*Matson*”) and *Puerto Rico Maritime Shipping Authority v. FMC*, 678 F.2d 327 (D.C. Cir. 1982) (cited in text as “*PRMSA*”).

¹⁰ The FMC recited these deadlines in its 1978 Advance Notice of Proposed Rulemaking when it initially sought comment from the public on how it might fashion standards and procedures that would permit compliance with a Congressional mandate to reach a final decision within 180 days of the filing of a GRI. 43 *Fed.Reg.* 53046-47 (November 15, 1978).

Trade. Matson advanced no challenge to the use or general validity of General Order 11, but rather disputed the FMC's downward adjustment of the Administrative Law Judge's calculation of an "adjusted benchmark" rate of return. *Matson*, 959 F.2d at 1042. Citing the rigorous procedural deadlines of the 1978 amendments, the Court stated that it was compelled to be "especially deferential" in its review. "... strict time frames within which to work may require an agency to make its decision on a record more slender than desired and may render acceptable an unusually terse explanation of reasoning." *Matson*, 959 F.2d at 1043 (quoting *PRMSA*, 678 F.2d at 336). The second case cited by GovGuam was the first petition for review to emanate from a General Order 11 proceeding. It involved proposed GRIs filed by four common carriers serving the Puerto Rico/Virgin Islands Trades. The focus of appellate review was the dominant carrier's (PRMSA's) objection to the FMC's treatment of fuel expense projections in the justification papers underlying that carrier's proposed general increase in rates.¹¹ *PRMSA*, 678 F.2d at 333.

These two cases, the only authority cited by GovGuam for the proposition that the Courts have cast an approving eye at FMC General Order 11 methodologies, establish only that the D.C. Circuit has expressed a certain empathy for the problems that confronted the FMC in administering the procedural constraints of the 1978 Intercoastal Act amendments in the complex context of reviewing proposed General Rate Increases. To make more of the decisions than that is misleading.

¹¹ PRMSA raised two other methodological issues and the matter was combined with shipper challenges to several elements of the FMC's ruling on general rate increases in the trade. Our point here is that there was no element of the case that supports the implication advanced by GovGuam that the courts have routinely countenanced the use of G.O. 11 in situations analogous to a non-GRI historic review of rates or rate levels in an action seeking damages.

Defendants ask the Board to note that GovGuam and the Defendants are not here arguing whether the FMC's 1980 regulations implementing the 1978 Intercoastal Shipping Act amendments were lawful. To the best of our knowledge, the general validity of General Order 11 as a device for meeting congressional mandates concerning prompt disposition of Commission-initiated investigations of GRIs was never subjected to judicial challenge. At this point, the matter is largely, if not completely, moot, given the significant changes to the underlying statutory scheme that occurred with the enactment of ICCTA.¹²

B. Historic Review of Overall Revenue Levels Conducted Pursuant to Fully Distributed Costs Methodologies Borrowed From Another Statutory Context Will Not Provide Effective Regulation And Risks Harm to Shippers and Carriers Alike.

Defendants' Initial Submission questioned the utility of historic inquiries into the overall revenue levels of carriers where complainants, like GovGuam, are seeking substantial monetary damages. We cited the multi-rate commodity-based structure of the carriers' tariffs, the peculiar circumstances that inevitably attend the computation of each commodity rate, circumstances that bear little relation to the overall cost structure of a carrier's operations, the lack of data in G.O. 11 format and the inevitable retroactive

¹² As noted in Defendants' Initial Statement (pages 37-38), GovGuam's use of G.O. 11 in Phase I of FMC Docket No. 89-26 in a manner similar to that which is advocated here appears destined for judicial review upon completion of Phase II of that ongoing proceeding. The issue there will not be the FMC's decision in 1980 to adopt FDC methodology in its administration of the Intercoastal Shipping Act, 1933. The issue will be (at least from the carriers' perspective) whether the FMC erred in permitting GovGuam to challenge, in the absence of GRIs, historic commodity rates using standard G.O. 11 measures.

ratemaking impact of decisions made years after the carrier exercised its judgment concerning rate levels in a given time period.

GovGuam's advocacy of FDC methodology potentially aggravates these harms in ways that work against the interests of carriers and shippers alike. The comprehensive statement of Dr. Kolbe notes that cost allocation burdens in circumstances such as are presented by the Guam trade are insurmountable and should be assiduously avoided. Kolbe V.S. at 12-15 and Appendix C. Dr. Kolbe also notes that the effect of historic rate of return review is to penalize carriers after the fact for years in which external circumstances might lead to favorable rates of return, while providing no mechanism for recouping losses in years in which returns were inadequate. Kolbe V.S. at 20-22. The impact over time is condemnation to below average rates of return. Kolbe V.S. at 20. "Inadequate returns lead to inadequate investment, which degrades service in the longer run." *Id.*

As noted above, there is nothing "tried and true" or "time-tested" about GovGuam's invocation of FMC methodologies in this section 13701 proceeding. Moreover, as Dr. Kolbe notes (Kolbe V.S. at 28-29), Dr. Nadel, a strong advocate in FMC Docket No. 89-26 for the use of a mechanically applied, "off-the-shelf" version of G.O. 11, devotes a substantial portion of his submission championing significant modifications to G.O. 11 to proposed modifications of allocation provisions of G.O. 11. Nadel V.S. at Part IV. These proposals, whether they diminish or exacerbate the faults of FMC General Order 11, certainly magnify the "untried" nature of the approach being sponsored by GovGuam. Against these unknowns, the Board has available to it methodologies whose provenance in the governing statute is undisputed, that are well

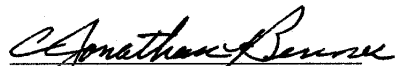
within the experience of the Board, its staff and the carriers that are subject to regulation by the Board and which are, as Dr. Kolbe exhaustively demonstrates in his statement and appendices, soundly rooted in accepted economic theory.

CONCLUSION

For the reasons stated above and in Defendants' Initial Submission In Phase II, the Board should rule (1) the rates at issue are those in effect on September 10, 1996, and (2) there is no reasonable methodology of determining the reasonableness of those rates in the aggregate given the enormous variation in such rates and the shipping conditions and other circumstances pertaining to them.

If the Board nevertheless determines that there is a reasonable methodology for determining the reasonableness of the rates at issue in the aggregate, the Board should first determine whether there was effective competition in the Guam trade in September, 1996, given the strong prima facie case that there was effective competition. If it determines that there was not effective competition in the trade at that time, it should apply the stand-alone cost test developed in rail and pipeline cases to test the reasonableness of the aggregate rates. The Board should not apply the G.O. 11 procedures and standards developed by the FMC (under a now-repealed statute) to assess proposed general rate increases.

Respectfully submitted,



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June 17, 2002

CERTIFICATE OF SERVICE

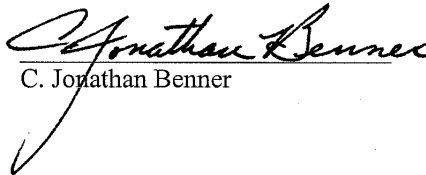
I hereby certify that on June 17, 2002 a copy of the foregoing Defendants' Reply
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C. Jonathan Benner

I. INTRODUCTION

My name is John C. Klick. I am Senior Managing Director of the Network Industry Strategies group of FTI Consulting, Inc., with offices located at 1201 Eye Street, NW, Suite 400, Washington, D.C. 20005.

Since 1970, I have been involved in cost, economic and financial studies of transportation, including transportation by rail, pipeline, motor carrier and barge. Many of these studies have culminated in testimony before regulatory bodies including the Surface Transportation Board ("STB" or "Board") and its predecessor, the Interstate Commerce Commission ("ICC"), the Federal Energy Regulatory Commission ("FERC"), and state agencies. Of particular relevance to this phase of the proceeding, I have testified in virtually every case involving the Board's Constrained Market Pricing ("CMP") standards and the application of the stand-alone cost ("SAC") test. In particular, I was a witness in both the *Ashley Creek* and *Koch* proceedings in which the STB applied CMP principles to transportation by modes other than rail.¹ A complete statement of my qualification is attached as Exhibit JCK-1.

II. SCOPE OF TESTIMONY AND SUMMARY

I have been retained by counsel for Sea-Land Services, Inc. and Matson Navigation Company, Inc. to respond to issues raised in the *Initial Submission of the Government of Guam In Phase II Concerning the Appropriate Methodology for Assessing Rate Reasonableness Under 49 U.S.C. § 13701(a)*, ("Initial Submission") filed by the Government of Guam ("GovGuam"). In particular, I have been asked to respond

to the testimony of GovGuam witness Philip H. Burris, and I address two additional issues prompted by my review of GovGuam's *Initial Submission*.

As I discuss in more detail below, I conclude that the characteristics that GovGuam attributes to the domestic off-shore trade between the mainland U.S. and Guam are precisely those characteristics that the Board's CMP and stand-alone cost approaches to evaluating maximum reasonable rates were designed to address. Furthermore, in adopting CMP and stand-alone costs, the ICC concluded that standards based on fully-allocated costs are not an appropriate basis for evaluating maximum reasonable rates for transportation services exhibiting the characteristics ascribed by GovGuam to this service.

In addition, I demonstrate that the implication in GovGuam's *Initial Submission* that CMP standards are designed to promote carrier revenue at the expense of protecting captive shippers from paying monopoly rates is clearly wrong, and turn on its head the economic logic that drove the ICC to adopt the principles of CMP, including the stand-alone cost test.

In short, I conclude that CMP and, in particular, the stand-alone cost test are the appropriate standards for assessing rate reasonableness in this proceeding.

¹ ICC Docket No. 40131 (Sub-No. 1), *Ashley Creek Phosphate Co. v. Chevron Pipeline Co.*, ("Ashley Creek"), and STB Docket No. 41685, *CF Industries, Inc. v. Koch Pipeline Company, L.P.* ("Koch").

III. THE PRINCIPLES OF CONSTRAINED MARKET PRICING ARE APPROPRIATE FOR EVALUATING THE REASONABLENESS OF THE RATES CHALLENGED IN THIS PROCEEDING

Mr. Burris argues that CMP principles and, in particular, the stand-alone cost constraint are not an appropriate basis for evaluating rates in this proceeding. He advances four arguments to support his conclusion, *i.e.*,

- CMP was developed by the ICC under a Congressional mandate that required the ICC to improve the financial viability of the railroad industry. With respect to the noncontiguous domestic trade, however, Congress's regulatory concern is with protecting the captive shipper from market power rather than enhancing the revenues of an industry in bankruptcy and with an enormous accumulated capital requirement in order that it may become viable.
- The STB is not required to consider defendants' revenue adequacy in evaluating maximum reasonable rates for the Guam trade.
- The Board is not required to find that defendants have market dominance in the Guam trade in order to have jurisdiction over the rates for the Guam trade.
- The Board's current method of allocating stand-alone costs to captive traffic is not appropriate for the Guam trade because it fails to protect the captive shipper in a situation, such as the Guam trade, where the captive traffic rates were established at a monopolistic level that are higher than competitive rates.

None of these four arguments has merit.

A. Background of the ICC's Development of the Stand-Alone Cost Constraint

In order to address Mr. Burris's claims, it is useful to briefly review the legal and economic principles that led the ICC to adopt CMP and the stand-alone cost constraint in the mid-1980s. Those principles include: (1) the recognition, as a matter of law and economics, that regulated carriers must have an opportunity to earn revenues sufficient to

cover costs, assuming they operate efficiently, including a competitive rate of return (measured by the current cost of capital); (2) rejection of fully-allocated costs and the determination instead that demand-based differential pricing (or Ramsey pricing) is the only economically defensible system of rate setting that would enable carriers to earn "adequate" revenues; and (3) the adoption of the "Constrained Market Pricing" standards, including the stand-alone cost test, as a practical approach to approximating the results of efficient differential pricing in individual rate cases. These principles, which Mr. Burris correctly notes were developed in the context of the need to regulate rail rates on coal, also provide the appropriate foundation for evaluating the rates at issue in this proceeding.

The history of the ICC's adoption of a competitive market model of rate regulation in the 1970s and 1980s is relevant to the issues raised by Mr. Burris in Phase II of this proceeding. Prior to 1976, railroads set prices by engaging in collective rate making using rate bureaus that acted under antitrust immunity. Regulation of rates was based largely on rate comparisons (which tended to preserve existing rate structures) and on arbitrary, non-demand-based cost allocations, such as "fully allocated costs."²

Over time, the flaws in this regulatory approach became clear. Railroads suffered financially because this traditional approach to rate regulation failed to recognize that competition -- and not arbitrary cost allocations -- determined the level of railroad rates on a significant portion of the overall traffic base. As a result, railroads were earning

² Under a fully allocated cost system of rate regulation, the rate for each shipment incorporates an "average" mark-up above variable costs sufficient, if applied to the carrier's entire body of traffic, to cover the full economic costs (including fixed costs and cost of capital) of service. If a carrier needed to charge 150% of its system-wide variable costs to cover its total system-wide costs (including cost of capital), the rate for each freight shipment would be set at 150% of the variable cost of transporting that freight shipment. See generally ICC Ex Parte No. 347 (Sub-No. 1), *Coal Guidelines, Nationwide* (served Feb. 24, 1983) ("*Coal Rate Guidelines-1983*"), at 8-10.

returns far below levels required to compete for capital with other sectors of the economy, and the industry was dis-investing through abandonments and deferred maintenance.

In the 4-R Act of 1976, and again in the Staggers Rail Act of 1980, Congress fundamentally changed the criteria for regulating rates in two significant ways.³ First, Congress reduced the scope of federal regulation of rates and services by introducing a more competitive environment in which the railroads would henceforth provide service. Second, these reforms underscored -- to the extent rate regulation was retained -- the importance of allowing the carriers to earn revenues adequate to compete for and attract capital so that carrier operations could have an opportunity to remain viable over the long run.

As Mr. Burris suggests, the statutory recognition of the policy of promoting railroad revenue adequacy *was* a key element of both the 4-R Act and the Staggers Act. Recognizing that healthy competition required that railroads be permitted to recover *all* their costs, including the cost of capital -- the 4-R Act established a new "Rule of Ratemaking" for railroads that provided that, in assessing rate reasonableness, "the Board shall make an adequate and continuing effort to assist [the railroads] in attaining revenue levels prescribed under this paragraph" -- *i.e.*, that revenues under honest, economical and efficient management cover total operating expenses plus "a reasonable and economic profit or return (or both) on capital employed in the business." 49 U.S.C. § 10704(a)(2). As I discuss below, however, the CMP approach was specifically designed

³ *Railroad Revitalization and Regulatory Reform Act of 1976*, Pub. L. No. 94-210, 90 Stat. 31 (1976) ("4-R Act"); *Staggers Rail Act of 1980*, Pub. L. No. 96-448, 94 Stat. 1890 (1980) ("Staggers Act").

to protect captive shippers while enhancing the opportunities for carriers to earn revenues adequate to permit long-term viability.

Four years after the 4-R Act, following rejection by the courts of various approaches to arbitrary accounting formulas for allocating fixed costs and revenue requirements among traffic categories proposed by the ICC,⁴ Congress required the ICC, in deciding maximum rate cases, to “recognize the policy...that rail carriers shall earn adequate revenues” under standards established by the agency. 49 U.S.C. § 10701(d)(2). The Board’s judicially approved standards for “revenue adequacy” establish that carriers must (over the long run) generate a rate of return on net investment equal to the current cost of capital (the level of return available on alternative investments). *See, Standards for Railroad Revenue Adequacy*, 364 I.C.C. 803 (1981), *aff’d sub nom. Bessemer & Lake Erie Railroad Co. v. United States*, 691 F.2d 1104 (3rd Cir. 1982), *cert. denied*, 462 U.S. 1110 (1983); *see also Coal Rate Guidelines*, 1 I.C.C. 2d at 535.

The ICC concluded that the system of rate making that would enable carriers to earn adequate revenues involved differential pricing in relation to cost. The need for differential pricing arises because the cost structures of railroads and other transportation industries are characterized by relatively high levels of fixed (or constant), joint and common costs. These are costs that do not vary directly with changes in the level of traffic volumes for particular shippers or shipper groups and that, therefore, are not directly attributable to a particular service or group of services. Because of these cost characteristics, such companies also exhibit significant economies of scope and density,

⁴ *See, e.g., San Antonio, Texas v. United States*, 631 F.2d 831 (D.C. Cir. 1980) (finding that ICC rate standards that fixed maximum coal rates at a level equal to 7% above fully allocated costs were arbitrary and capricious).

with the result that average costs decline as traffic volumes increase.⁵ GovGuam witness Nadel concedes that the domestic off-shore trade between the U.S. mainland and Guam is characterized by such joint and common costs. Nadel V.S. at 5.

Under these circumstances, a carrier cannot set its rates at marginal or incremental costs because this would prevent the carrier from recovering its fixed, joint and common costs and would result inevitably in the carrier's demise. In order to recover its total costs of service, and earn a rate of return necessary to attract the capital required to maintain and replace plant and facilities as they wear out, carriers in such industries must be allowed to set rates above -- indeed, substantially above -- marginal costs. The fundamental issue of rate regulation that the ICC grappled with in the early 1980s was how to design maximum rate standards that would permit carriers to recover such "unattributable" costs, and be financially viable over the long-term, *without* subjecting the carriers' shippers to monopoly prices or creating incentives for inefficient investment.

As noted earlier, the ICC initially had thought that adoption of "fully allocated costs" or "fully distributed costs" would accomplish this goal, consistent with approaches used by other agencies.⁶ Under this approach, a carrier's unattributable costs were assigned to particular traffic movements on the basis of (often complex) formulas. For example, a carrier's unattributable costs could be assigned to each individual movement by setting each movement's rate equal to its variable costs multiplied by the ratio of the carrier's total system-wide costs to its total system-wide variable costs. Another example

⁵ See generally *Coal Rate Guidelines*, 1 I.C.C. 2d at 526; *Coal Rate Guidelines-1983*, at 7; *Rate Guidelines -- Non-Coal Proceedings*, 1 S.T.B. 1004, 1007 (1996).

⁶ See generally, A. Kahn, *The Economics of Regulation: Principles & Institutions* 150-59 (1970); J. Bongright, et al., *Principles of Public Utility Rates* 478-513 (2d ed 1988).

of an approach to calculating fully allocated costs for individual movements was the ton/ton-mile allocation methodology that the ICC proposed in the early 1980s.⁷

In *Coal Rate Guidelines*, the ICC explicitly recognized that fully-allocated cost-based rate making was a fundamentally flawed approach for establishing maximum reasonable rates. This is because requiring that rates be set at the level of fully-allocated costs ignores the extent to which competition restricts the carrier's ability to charge rates high enough to achieve this level. This competition does not have to be head-to-head competition between two carriers of the same mode, or even carriers of different modes. For example, if the shipper faces competition in its end markets from producers in other parts of the country or from substitutable products that do not move via the carrier, this too can exert downward pressure on a carrier's rates. Of course, as the Board has recognized frequently in recent decisions, head-to-head competition between two carriers is a direct and effective form of competition.⁸

When competitive alternatives exist, shippers may shift to other suppliers if the carrier seeks to charge rates high enough to cover fully allocated costs. Such competition therefore compels carriers to price some of their services below fully allocated costs. Unless the carrier is allowed to charge shippers with fewer competitive options rates that are correspondingly higher than the fully allocated costs of serving them, therefore, the carrier will not be able to recover its total costs. As the ICC has explained:

We seriously doubt that any system of rate regulation based solely upon an arbitrary cost-allocation formula will enable rail carriers to achieve revenue adequacy. We cannot

⁷ ICC Ex Parte No. 347 (Sub-No. 1), *Coal Rate Guidelines, Nationwide* (served Dec. 21, 1981).

⁸ See, for example, Finance Docket No. 32760, *Union Pacific Corporation, Union Pacific Railroad Company, and Missouri Pacific Railroad Company -- Control and Merger -- Southern Pacific Railroad Company, Southern Pacific Transportation Company, St. Louis Southwestern Railway Company, SPCSL Corp., and the Denver and Rio Grande Western Railroad Company*, at 1 S.T.B. 386.

assume that traffic will actually move in each market at the fully allocated cost rate level as determined by a cost allocation formula. Carriers must charge competitive rates in competitive markets or lose the traffic. As Congress has recognized, most rail markets are competitive. Thus, the market effectively ignores the "scientific" assignment of certain costs to each of the carrier's rates. Yet, if an arbitrary allocation of costs were used to formulate and impose a rate ceiling, the carrier could not make up for the revenue shortfall it would suffer on movements that fall below the rate necessary to contribute the allocated amount.

Coal Rate Guidelines-1983, at 8 (footnote omitted). See also *Coal Rate Guidelines*, 1 I.C.C.2d at 526.

On the basis of these considerations, the ICC and Board, the courts and Congress have all recognized that in order to attain revenue adequacy, carriers must be permitted to charge shippers of less competitive traffic rates that reflect a higher markup above variable costs than are available for rates charged to shippers of competitive traffic.⁹ As the ICC explained:

Railroads must be allowed to price their service differentially in order to achieve revenue adequacy. This concept, which is fundamental to the rail rate structure, holds that relatively inelastic markets should bear a larger share of the fixed and joint costs of the railroad system. It is a deliberate and effective pricing mechanism within the managerial discretion of the railroads and the contemplation of Congress.

Volkswagen of America, Inc. v. Baltimore & Ohio Railroad Co., 367 I.C.C. 493, 501 (1983).

⁹ See, e.g., *Coal Rate Guidelines*, 1 I.C.C. 2d at 526-27; *Potomac Electric Power Co. v. Consolidated Rail Corp.*, 367 I.C.C. 532, 538-39 (1983); *San Antonio, Texas v. United States*, 631 F.2d 831, 850-53 (D.C. Cir. 1980); *Houston Lighting & Power Co. v. United States*, 606 F.2d 1131, 1148 (D.C. Cir. 1979), cert. denied, 444 U.S. 1073 (1980); H.R. Rep. No. 1035, 96th Cong., 2d Sess. 39 (1980) ("[t]he Committee understands the necessity of such differential pricing...").

Recognition of the need for differential pricing requires a shift from an approach to maximum rate regulation that is based on arbitrary allocation of total cost to one that is founded upon demand considerations.

Having endorsed the concept of differential pricing, the ICC had to determine an appropriate upper limit on a carrier's ability to recover its unattributable costs through differential pricing for a particular shipper. This was the principal subject of the ICC's landmark *Coal Rate Guidelines* proceeding. In that proceeding, the ICC endorsed the "Ramsey" pricing approach to differential pricing, under which rates are set so that contribution above marginal costs varies in inverse proportion to the shipper's elasticity of demand for the carrier's service. Ramsey pricing benefits all of a carrier's customers because it provides a feasible way to share the common costs. As implemented by the Board, it maximizes the contribution that customers with competitive options make to the recovery of the carrier's unattributable costs. In addition, Ramsey pricing promotes economic efficiency because it minimizes the overall reduction in shipping volume that occurs when the carrier (necessarily) departs from the economic ideal of marginal-cost pricing. As the ICC explained in *Coal Rate Guidelines*:

Applied to the railroad industry, Ramsey pricing would permit an efficient carrier to cover all of its costs (including the cost of capital) and thus become revenue adequate. Moreover, the attainment of revenue adequacy would benefit shippers because the industry would then be able to attract all the capital needed to provide and maintain high-quality rail service.

1 I.C.C.2d at 527.

The application of Ramsey pricing principles appropriately results in rates for demand-inelastic shippers that are multiples of properly calculated variable costs.

While recognizing the theoretical desirability of the Ramsey pricing model, in *Coal Rate Guidelines* the ICC concluded that it would be impractical “to impose pure Ramsey pricing as a regulatory requirement for across-the-board application in all cases.” 1 I.C.C.2d at 527. Because implementation of Ramsey pricing would require that the marginal cost and elasticity of demand be developed for every movement in a carrier’s system, it would be too difficult to expect a complaining shipper to apply the model in individual rate challenges. *Id.* Accordingly, the ICC embraced as “an alternative to pure Ramsey pricing” (*id.* at 527) its “Constrained Market Pricing” standards. In adopting these standards, the ICC expressed confidence that CMP “should lead to rates approximating Ramsey prices *and protect captive coal shippers from possible carrier abuse of pricing discretion.*” *Id.* at 534, emphasis supplied.

CMP permits -- indeed, directs -- carriers to set prices differentially in accordance with competition and demand elasticities subject to several upward constraints. One of those constraints is the “stand-alone cost constraint,” which states that individual rates or a group of rates may not exceed the full economic cost of providing the transportation for that shipper (or group of shippers) using a hypothetical, efficient, stand-alone transportation operation that would serve only that shipper (or group of shippers). *See Coal Rate Guidelines*, 1 I.C.C.2d at 542-46. The SAC test is designed to simulate a competitive (or contestable) market by reflecting the current costs that would be incurred by an efficient competitor to provide the service (including cost of capital) if it did not face barriers to entry. This would mimic prices that would be observed in competitive markets. It also ensures that, as is the case in competitive markets where rates are based

on supply and demand, a complaining shipper is not required to pay more than the efficient costs of replicating the facilities needed to serve it.

The ICC concluded that the CMP standards should yield rates that reflect market demand and ...cover only the total costs of an efficient carrier.” *Coal Rate Guidelines*, 1 I.C.C.2d at 534.

B. The Principles That Led to the Adoption of CMP and the Stand-Alone Cost Test Are Applicable in This Proceeding

With this background, I now specifically address each of Mr. Burris’s four arguments.

First, Mr. Burris implies that CMP and the stand-alone cost constraint are designed to promote railroad (and, by extrapolation, other carrier) revenue adequacy at the expense of protecting captive shippers. *Burris V.S.* at 5. In its legal brief, GovGuam makes this claim even more explicitly. *See, GovGuam’s Initial Submission* at 17. As the preceding discussion makes clear, this turns the ICC’s logic on its head. What the ICC concluded in *Coal Rate Guidelines* was that, as a matter of economic and structural logic, the prior regulatory scheme based on fully-allocated costs acted to prevent carriers from ever achieving long-term financial viability.

CMP and the stand-alone cost test were designed as a surrogate for Ramsey pricing to remove the prior regulatory impediment in order to give carriers an opportunity to achieve revenue adequacy, while at the same time protecting captive shippers from unreasonable rates. In adopting CMP and the stand-alone cost constraint in 1985, however, the ICC explicitly described it as a “regulatory framework that will meet our dual objectives of providing railroads the real prospect of attaining revenue adequacy while protecting captive coal shippers from ‘monopolistic’ pricing practices.” 1 I.C.C. 2d

at 524-525. In fact, the ICC recognized that properly-developed stand-alone costs establish maximum rates at levels one would expect to observe, over the long-run, in competitive markets:

...by identifying the costs that would be incurred if [a stand-alone facility were constructed], an appropriate rate cap can be determined. In this way, railroads functioning in a non-competitive market will be required to price as if alternatives to their services were available. That is, their rates will be judged against simulated competitive prices. As a result, the efficiencies of a contestable market will serve as the guide for establishing maximum rates on captive coal traffic.

* * *

The purpose of a SAC analysis is to determine the least cost at which an efficient competitor could provide the service, because by doing so we are simulating the competitive price for the market.

Id. at 542.

In short, the stand-alone cost test is designed to protect captive shippers from monopoly pricing by simulating prices that would exist in competitive markets. This is an appropriate goal in regulating rates in *any* transportation market, including the noncontiguous domestic trade between the mainland United States and Guam. Consistent with this view, the Board/ICC have applied CMP principles in two cases that do not involve railroads.¹⁰ When Mr. Burris describes the domestic offshore trade between the

¹⁰ See ICC Docket No. 40131 (Sub-No. 1), *Ashley Creek Phosphate Co. v. Chevron Pipeline Co.*; and STB Docket No. 41685, *CF Industries, Inc. v. Koch Pipeline Company, L.P.* In *Koch*, the STB authorized complainants to rely upon either the stand-alone cost constraint or the revenue adequacy constraint. As the ICC has previously recognized, the revenue adequacy constraint is a top-down constraint designed to evaluate the overall earnings of a company; the stand-alone cost constraint is a bottom-up constraint that is designed to evaluate a subset of the operations of a transportation system. In *Koch*, it was possible to apply the revenue adequacy constraint to the operations of Koch's anhydrous ammonia pipeline because separate accounting and operating records had been maintained for the pipeline since it was acquired by Koch. The issues raised in this proceeding are more akin to those observed in rail rate reasonableness proceedings, in which the complaint addresses a subset of a carrier's operations that significantly overlaps other operations

mainland U.S. and Guam as being characterized by “extraordinarily high rates that were established in the absence of competition and that are vastly higher than truly competitive rates” (Burris V.S. at 11), these are precisely the circumstances in which the ICC/STB have applied CMP and the stand-alone cost test.¹¹ There is simply no justification for the Board to regress to the discredited fully-allocated cost approach (as exemplified by the General Order 11 (GO-11) standard advocated by GovGuam) for the purposes of rate regulation in this proceeding.

Second, Mr. Burris cites the fact that “the STB is not required to consider the Defendants’ revenue adequacy when determining maximum reasonable rates for Guam trade and for that matter is not even required to establish a revenue adequacy standard” as a reason for rejecting application of CMP and stand-alone costs. Burris V.S. at 5. Once again, this stands the economic and policy conclusions reached by the ICC/Board on their head. While there may be no statutory *requirement* to ensure that carriers in the offshore domestic trades earn adequate revenues, the ICC/Board have concluded that when a transportation service is characterized by a large proportion of fixed, joint and common costs, and where these costs are shared between services that have differing price elasticities of demand (which GovGuam alleges is the case in this proceeding -- *see* Burris V.S. at 13), the principles of CMP -- including the stand-alone cost constraint -- protect captive shippers from monopolistic prices *and* provide carriers with an opportunity to earn adequate revenues; fully-allocated cost-based prices do not. Thus,

of the carrier and for which separate accounting and operating records are not routinely maintained. In those circumstances, the bottoms-up stand-alone cost constraint is the relevant CMP constraint.

¹¹ As Sea-Land and Matson explained in their opening comments in Phase II, there has been a long history of head-to-head competition by carriers in the Guam trade. As Mr. Burris concedes (Burris V.S. at 9), these are circumstances in which the Board has traditionally concluded that no rate regulation is required.

while the STB may not be statutorily *required* to formally assess revenue adequacy for carriers in the domestic off-shore trades, it makes no sense for the Board to adopt a regulatory standard in this proceeding that it has previously concluded would absolutely prevent Defendants from earning their cost of capital and being financially viable over the long run.

Third, Mr. Burris argues that there is no statutory requirement “that the Board formally fund market dominance in order to have jurisdiction over the rates charged in the noncontiguous trade.” *Burris V.S.* at 5. While this may be true, Section III.A. makes clear that the major thrust of ICC/STB regulatory thinking during the past twenty years has been to permit market forces to establish prices in regulated industries to the maximum possible extent. As a result, it makes no sense to undertake an in-depth analysis of maximum reasonable rates for the domestic off-shore trade between mainland U.S. and Guam if effective competition exists in that market. As the Board has previously recognized, in a decision to apply CMP principles to non-rail transportation:

...it is generally recognized that sound regulatory policy allows the marketplace to determine the most efficient level of prices where competition is sufficient to prevent the exercise of market power.

If the market is effectively competitive, then agency action can only distort the economically efficient rate(s). Such ill-advised action would contravene the policy to promote adequate, economical and efficient transportation, and to encourage sound economic conditions in transportation.¹²

¹² *Koch*, slip opinion dated May 6, 1997, at 6. In the *Koch* proceeding, the STB concluded that:

...while we will not exercise our authority to prescribe a rate to a facility that has effective competitive alternatives, we will not conduct an initial and separate market power inquiry here. Our experience in the rail area has shown that bifurcation of the market power and rate reasonableness phases can unnecessarily prolong a proceeding.

Fourth, Mr. Burris argues that the “proportional reduction” methodology that the STB currently uses to reduce issue traffic rates -- if it concludes that revenues exceed SAC -- would be inappropriate “where the captive traffic rates were established at monopolistic levels that are vastly higher than the highly competitive rates charged to other volumes that would be available to a hypothetical stand-alone competitor.” Burris V.S. at 5. The problem with this argument, as I have previously discussed, is that CMP and the stand-alone cost test were explicitly designed to protect captive shippers from monopolistic pricing and from cross-subsidizing rates on traffic with more competitive options. Thus, the characteristics that Mr. Burris ascribes to the domestic off-shore trade between the U.S. mainland and Guam are precisely the circumstances in which the Board’s CMP and SAC standards were designed to apply.¹³

More fundamentally, the issue of how existing rates should be modified *if* the Board should determine that they are unreasonably high is an issue that clearly is separate from the question of what standards the Board should apply to assess rate reasonableness in the first instance. For this reason, whatever concerns Mr. Burris might have about the “proportional reduction” methodology, they should not affect the Board’s decision in

Id. at 7

This conclusion makes sense in circumstances, such as *Koch* and in railroad rate reasonableness proceedings, where the parties are in agreement that CMP principles (including the SAC constraint) are the appropriate bases for establishing maximum reasonable rates. In this proceeding, if the STB were to conclude that the domestic off-shore trade between mainland U.S. and Guam is an effectively-competitive market, it is unlikely that the Board would ever have to reach a decision on the appropriate methodology for assessing maximum reasonable rates, because according to GovGuam, the other domestic off-shore trades are characterized by effective competition. For this reason, in this proceeding it would be administratively most efficient to assess the extent, if any, to which Defendants have market power *before* requiring the parties to undertake complex and data-intensive discovery and submission of cost evidence. *Koch*, slip op. dated May 6, 1997 at 6.

¹³ GovGuam’s concern about proportional reductions is ironic, given that its own witness employed this methodology in evidence submitted to the FMC, based on GO-11.

Phase II of this proceeding about the appropriate standards for assessing rate reasonableness.

C. Conclusion

To conclude, while Mr. Burris seeks to distinguish between the domestic off-shore trade and the railroad industry -- in an effort to persuade the Board that it should not apply its CMP and SAC standards in this proceeding -- Mr. Burris has cited a series of "distinctions without differences." As GovGuam's own evidence makes clear, the characteristics it attributes to the domestic off-shore trade between the U.S. mainland and Guam are *precisely* the characteristics that led the ICC/Board to determine (1) that CMP and SAC were preferable to fully-allocated cost-based approaches to establishing maximum reasonable rates, and (2) to conclude that application of fully-allocated cost-based approaches would prevent carriers from being able to achieve long-term financial viability -- to the detriment of *both* carriers and their customers.

Although Mr. Burris now claims that the stand-alone cost test should not apply, *The Guam Trade Study*, prepared at an earlier date and attached as Appendix C to GovGuam's *Initial Submission*, recognized the applicability of the stand-alone cost test to the rate reasonableness issues presented in this proceeding by noting:

Under ICC case law, a captive coal shipper cannot be charged more than an efficient "stand-alone" railroad service would cost. Coal Rate Guidelines - Nationwide, 1 I.C.C. 2d 520 (1985) aff'd Consolidated Rail Co. v. U.S., 812 F.2d 1444 (3rd Cir. 1987). In the context of ocean transportation to Guam, Guam captive shippers could not be charged more than the costs of providing an efficient ocean transportation transpacific "pass-by" service to the island.

The Guam Trade Study, at 29, n. 37.

GovGuam had it right the first time. It is clearly feasible to apply SAC principles to the domestic off-shore trade between mainland U.S. and Guam, and it is appropriate to do so for the economic and policy reasons previously cited by the ICC/Board (as discussed above). The Board should ignore Mr. Burris's belated efforts to suggest that these reasons do not apply in this proceeding -- an approach based on fully-allocated costs is not appropriate.

IV. OTHER ISSUES

A. The Jones Act and Other Regulations Under Which The Off-Shore Domestic Trade Operators Are Not "Entry Barriers" as the STB Has Defined Them for Purposes of Applying the Stand-Alone Cost Test

In his testimony, Mr. Burris states that the Jones Act and other Federal and state regulations have created market power for Defendants. Burris V.S. at 14. Elsewhere, he actually characterizes these statutes as "barriers to entry into the noncontiguous domestic trades that has created substantial market power for Defendants." *Id.* at 18. Although he does not explicitly say so, it seems likely that Mr. Burris has chosen to characterize the requirements as "barriers to entry" as a preamble to arguing that such costs should be excluded if the Board should decide to apply the stand-alone cost test in this proceeding.

As a threshold matter, it is clear -- from GovGuam's own evidence -- that the Jones Act and other Federal and state regulations are *not* barriers to entry. As I noted earlier, GovGuam's witness Nadel concedes that entry and exit have occurred periodically in this market. Mr. Burris seems to be suggesting that because these regulations add to the cost of entering the Guam trade, they somehow confer market power upon the incumbent Defendants. But that sort of logic would suggest that *any*

characteristic of serving Guam that increases cost would somehow increase market power and act as a barrier to entry. Obviously, Mr. Burris's logic is flawed. Costs associated with regulation act as barriers to market entry only when they do not fall equally on incumbents and new entrants alike. This principle has been articulated repeatedly by the ICC/Board.¹⁴ However, where the cost of regulations are incurred by *all* participants in a market -- as is the case with the Jones Act and other Federal and state regulations -- they cannot possibly act as a barrier to entry and, therefore, confer no market power on the incumbents. When all participants in a market must abide by regulations, the Board has routinely included these costs in its SAC calculations.¹⁵ The costs associated with the Jones Act and other Federal and state regulations are not barriers to entry, and there would be no rationale for the Board's excluding them should it decide to apply the SAC standard in this proceeding.

B. Minimum Rate Standards Also Should Apply

GovGuam's *Initial Submission* ignores entirely another staple of ICC/STB rate regulations *i.e.*, that a rate must at least cover its directly variable costs. The rhetoric of GovGuam's arguments suggests that there is no need for the Board to concern itself in this proceeding about this aspect of rate regulation -- it repeatedly asserts (but offers no evidence to confirm) that the rates currently charged by Defendants in the domestic off-shore trade between the U.S. mainland and Guam are so profitable that they cover their attributable costs by several multiples.

¹⁴ See, for example, I.C.C. Docket No. 37038, *Bituminous Coal -- Hiawatha, Utah to Moapa, Nevada*, 6 I.C.C. 2d at 42.

¹⁵ For example, the ICC/Board require stand-alone railroads to abide by the federal hours-of-service laws and, if they would be Class I railroads, to file Annual Reports and other documents with the Board.

If Guam's shippers truly are as captive as GovGuam suggests, they are precisely the type of shippers that -- under the principles of differential pricing embraced by the ICC/STB -- *should* pay rates that are several multiples of their attributable costs, and the stand-alone cost test is the appropriate mechanism for determining whether those rates are too high. But elements of GovGuam's evidence suggest that the facts may be otherwise. Although GovGuam contends that the domestic off-shore trade between mainland U.S. and Guam is highly profitable, and it concedes that entry is not only feasible but has occurred, the logical question is why for many years the market has been able to support only two competitors. One possible answer is that there is not enough volume in this market to cover the full economic incremental costs that would be incurred by three or more competitors in the market. This, in turn, suggests that the relatively higher rates that GovGuam cites for this trade might be a function of relatively higher incremental costs incurred to provide service in this trade.

If so, one way for Defendants to demonstrate that their rates for the domestic off-shore trade between the mainland U.S and Guam are reasonable would be to show that the revenues fail to, or just barely, cover the full economic incremental costs of providing the service. In deciding what *maximum* rate reasonableness standard it will apply in this proceeding, the STB should not foreclose Defendants' ability to submit an analysis based on the Board's *minimum* rate standards.

STATEMENT OF QUALIFICATIONS
OF
JOHN C. KLINK

My name is John C. Klick. I am Senior Managing Director of FTI Consulting, Inc. Our offices are located at 1201 Eye Street, NW, Suite 400, Washington, DC 20005..

I am a 1970 graduate of Bates College, from which I obtained a Bachelor of Science degree in Mathematics. I also have taken graduate courses in finance, accounting, and operations research. Since 1970, I have been involved continuously in cost-based economic and financial studies for a variety of industries.

Throughout my career, I have organized and directed cost and economic studies for service providers, state governments, and other public bodies dealing with railroads, pipelines and other network industries. Examples of past studies that I have participated in include (1) organizing and directing traffic, operational and cost analyses in connection with the valuation of northeastern rail property transferred to the Consolidated Rail Corporation, (2) calculation of stand-alone and long-run incremental costs for major segments of the nation's railroad industry, (3) estimation of the long-run incremental costs of providing various aspects of local telecommunications services, and (4) calculation of marginal, incremental and stand-alone costs for services performed by a major petroleum products pipeline company. Virtually all of these studies have involved the development and/or use of complex, computerized cost models that

make extensive use of detailed engineering and operating input and incorporate sophisticated discounted cash flow techniques.

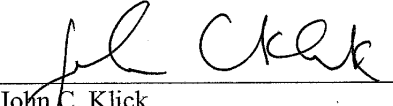
In addition, I have undertaken studies related to economic issues such as the effects of productivity and inflation on the costs of operations, forecasts of traffic volumes and corresponding resource requirements, and valuations of services and facilities.

The results of these studies frequently have been presented in both oral and written testimony before the Surface Transportation Board (and its predecessor, the Interstate Commerce Commission), the Federal Energy Regulatory Commission, state public utility commissions, arbitration panels, and the federal and state courts. This testimony has related to subjects such as the development of variable cost of service, marginal costs, incremental costs, stand-alone costs, economic principles related to the maximum and minimum level of rates, and procedures for implementing these maximum and minimum rate principles.

VERIFICATION

I, John C. Klick, verify under penalty of perjury, that the foregoing statement is true and correct. I further certify that I am qualified and authorized to file this statement.

Executed this 14th day of June, 2002.



John C. Klick

**Before the
SURFACE TRANSPORTATION BOARD**

Government of the Territory of Guam,

Complainant,

v.

Sea-Land Service, Inc.

And Matson Navigation Company, Inc.

Defendants.

Docket No. WCC-101

VERIFIED STATEMENT

OF

A. LAWRENCE KOLBE

Principal

The Brattle Group, Inc.

On Behalf of

Sea-Land Service, Inc.

and

Matson Navigation Company, Inc.

June 17, 2002

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**Before the
SURFACE TRANSPORTATION BOARD**

VERIFIED STATEMENT OF A. LAWRENCE KOLBE

I. INTRODUCTION AND SUMMARY

My name is A. Lawrence Kolbe. My business address is The Brattle Group, 44 Brattle Street, Cambridge, Massachusetts, 02138. I am a Principal of The Brattle Group ("Brattle"), an economic, environmental and management consulting firm with offices in Cambridge, Washington and London.

I have been asked by Sea-Land Service, Inc. ("Sea-Land") and Matson Navigation Company, Inc. ("Matson") (collectively, the "Carriers") to review and, if appropriate, to comment on the Verified Statement of Ernest Nadel ("Dr. Nadel's Statement," or in citations, "Nadel") on behalf of the Government of the Territory of Guam ("GovGuam") regarding the appropriate regulatory methodology for assessing whether the overall tariffs for U.S.-flag carriers in the Guam trade are reasonable. I understand that this question only becomes relevant if the Surface Transportation Board ("Board") decides that competitive conditions in the trade require further regulatory proceedings to determine rate reasonableness.

I further understand that this Phase II hearing, on whether a review is needed and, if so, on what basic approach will be used for the review, would be followed by a Phase III hearing on application of the approach selected in Phase II, should the Board decide competition alone is not enough. Accordingly, unlike Dr. Nadel's Statement, my statement does not attempt to go into the application details of either the fully distributed cost allocation method Dr. Nadel's Statement recommends or, alternatively, the method the economics literature endorses, which I would recommend as the basis of any Phase III hearing instead of a fully distributed cost approach.

A. QUALIFICATIONS

My qualifications to undertake this assignment may be summarized as follows. My work concentrates on financial and regulatory economics. I hold a B.S. from the U.S. Air Force Academy and a Ph.D. from the Massachusetts Institute of Technology, both in economics.

Among other duties, I lead the financial economics practice at Brattle. Brattle members have authored or co-authored a number of standard references and many articles on financial and regulatory economics. These include the leading graduate textbook on corporate finance, Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance*, New York: McGraw-Hill Book Company [now Irwin-McGraw Hill] (1981, 2nd Ed. 1984, 3rd Ed. 1988, 4th Ed. 1991, 5th Ed. 1996, 6th Ed. 2000); A. Lawrence Kolbe and James A. Read, Jr., with George R. Hall, *The Cost of Capital: Estimating the Rate of Return for Public Utilities*, Cambridge, MA: The MIT Press, 1984; A. Lawrence Kolbe, William B. Tye and Stewart C. Myers, *Regulatory Risk: Economic Principles and Applications to Natural Gas Pipelines and Other Industries*, Boston: Kluwer Academic Publishers (1993); *The Utility Capital Budgeting Notebook*, EPRI TR-104369, Palo Alto, CA: Electric Power Research Institute, 1994 (Principal Investigators A. Lawrence Kolbe and James A. Read, Jr.); and Richard A. Brealey, Stewart C. Myers, and The Brattle Group, *Capital Investment and Valuation and Financing and Risk Management*, Irwin-McGraw Hill, both forthcoming. (Mr. Read is the Brattle author of *Financing and Risk Management* and I am the Brattle author of *Capital Investment and Valuation*.) All of the above authors except George R. Hall are or have been Brattle Principals. (Professor Brealey resigned as a Principal because of his appointment as a special advisor to the Bank of England.)

A number of the articles I have written focus on various aspects of the risks that regulated firms face and on regulatory economics. I have testified on the cost of capital, the required rate of return, investment risk, capital recovery under rate regulation, regulatory economics, and related matters for more than a dozen industries, regulated and unregulated alike, in many forums. These include international arbitrations in The Hague, London and Melbourne, Australia; lawsuits in U.S. District Courts; U.S. arbitrations; and regulatory proceedings before U.S. and Canadian federal, state and provincial regulatory commissions. In particular, I testified on behalf of American President Lines, Ltd. ("APL") and Sea-Land in Federal Maritime Commission ("FMC") Docket No. 89-26 ("Docket 89-26"), *The Government of the Territory of Guam, et al., v. Sea-Land Service, Inc. and American President Lines, Ltd.* I have not previously testified before the Board or its predecessor, the Interstate Commerce Commission ("ICC").

Appendix A supplies additional information on my qualifications.

B. SUMMARY OF FINDINGS

Dr. Nadel's Statement claims that the FMC's "GO-11" methodology "satisfies extremely well the economic need for regulation in the Guam trade and the long-standing principles of maximum rate regulation in the U.S."¹ In support of this assertion, Section II of the Statement discusses Dr. Nadel's view of the economics of the Guam trade, its Section III discusses his view of the nature of the GO-11 approach, and, tellingly, its Section IV summarizes modifications to the approach that Dr. Nadel already recommends, even in advance of any Phase III hearing on its application, should the Board adopt GO-11. It makes reference to various economic principles used in rate regulation (at pages 5-7, for example), but it does *not* review the economics literature on the topic of setting rates for a service that is most economically supplied in common with other services.

This is unfortunate, because the economics literature shows that fully distributed cost ("FDC", also known as "fully allocated cost") methods such as GO-11 attempt to accomplish an impossible goal, and in the process can do a great deal of economic harm. The economics literature instead recommends procedures of the kind the ICC and the Board have had in use for many years, not fully distributed cost procedures such as GO-11.

Specifically, it is literally impossible to calculate "the" average or total cost of a service supplied most efficiently in combination with other services. This in turn implies it is impossible to calculate "the" rate of return on the capital used to provide such a service. Instead, if the tariffs must be tested by regulators, the minimum tariff schedule for each service should at least recover the service's long-run marginal cost, and if the services are collectively to be self-supporting, the remaining, unattributable costs should be recovered through markups over marginal cost that are based on demand-side characteristics. FDC, through economically arbitrary accounting cost allocations, can lead to rate levels that are not sustainable in the market. All of this has long been recognized by the Board and its predecessor, the ICC. The problems with FDC are particularly acute for a small service that is part of a much larger system, as is true

¹ Nadel at p. 4.

for the Guam trade. Small differences in the methods used to allocate system-wide costs can produce large swings in the proportion of those costs to be recovered from the small trade.

Additional problems can arise for FDC methods when the regulated entities face competition, either from other regulated entities or from unregulated firms. FDC, like regulation of franchised utilities, typically starts from a "revenue requirement" that bases the amounts charged for capital assets on the net historical cost of those assets. This makes rates a function of the vintages of the assets used. Competitive prices do not depend on the vintages of the assets used by competing firms, but instead reflect current asset values. Regulation in the face of competition that tightly adhered to a historical cost standard would sometimes constrain rates that competition would permit, while competition would sometimes constrain rates that regulation would permit. The result would be non-compensatory tariff levels.

Also, no rate-regulated company expects to earn exactly its cost of capital in each and every year. Instead, realized returns vary from expected returns, due to the business cycle and random chance. If regulation were to constrain tariffs based on a short period of realized returns above the cost of capital, but leave tariffs alone if the realized returns were below the cost of capital, carriers would not expect to earn the cost of capital on average. Again, the result would be non-compensatory tariff levels.

Non-compensatory revenues for the carrier harm not only the carrier, but also shippers, as the carrier adjusts its services in response. If assets are inflexible (e.g., railroad tracks or power plants), such harm can take a long time to appear. If assets are more flexible (e.g., container ships, which can be redeployed or sold for use in entirely different trades), such harm can appear far more quickly. Thus it is in shippers' interests as well as carriers' to ensure that the inherent defects of FDC methods do not produce inadequate tariff levels.

Dr. Nadel's Statement either ignores, misstates, or misinterprets the relevant economic principles. My statement attempts to identify and clarify the most serious problems, some of which are summarized here.

The first of these is Dr. Nadel's attempt to link the concept of conventional rate regulation of an entire franchised service, such as for an electric utility, with an FDC test of the Carriers' rates to Guam, which the Carriers provide in conjunction with other services to and from other places. It is possible to calculate *system-wide* total costs and rates of return, but that does not mean it is possible to calculate total

costs and rates of return for individual services when they are most efficiently provided in common. Any such calculations produce economically arbitrary results.

For example, it is possible to measure the amount invested and spent annually to raise sheep to produce mutton and wool, and to measure the rate of return on that investment. But what is "the" cost of mutton (or of wool)? What part of the money used to buy the sheep is invested in "wool" versus "mutton," and what is the rate of return on each part? Such questions literally cannot be answered in any economically valid way, since most of the costs of buying and raising the sheep are common to both of its products. Yet FDC attempts to assign such unique answers without reference to the demand for the products, which always leads to economically arbitrary answers and sometimes to infeasible ones. For example, if an FDC analysis allocated the costs of sheep-raising based on the relative pounds of mutton or wool produced when the prices per pound the two command in the market are very different, it could wrongly conclude that one product (say wool) is earning substantial excess profits while the other (mutton) is losing money hand over fist, when the combined operation is just earning the competitive return to sheep raising. A regulator that ordered a reduction in wool prices based on that FDC analysis would drive the farm out of business.

In a related vein, while all parties might agree with Dr. Nadel that a certain set of regulatory goals is desirable -- protecting customers while assuring an adequate return to investors, for example -- such agreement does *not* imply that FDC is an appropriate or even a feasible way to achieve those goals.

Additionally, Dr. Nadel's Statement attempts to nominate one part of the Carriers' services -- eastbound traffic -- as primary and the other part as secondary. It then implies that *any* return over incremental cost on the westbound traffic therefore is beneficial to the Carriers and should be seen as sufficient.² This is a fundamental violation of the principles of regulatory economics. When it is cheaper to provide two services in common, the combined cost will be lower than the stand-alone cost of each, which will be reflected in market prices, and *each* service could be provided incrementally at a lower cost if the first is seen as primary. (Wool is cheaper if you assume you're committed to producing mutton, and

² As part of this discussion, Dr. Nadel's Statement also attempts to resolve without quantitative analysis the level of the incremental costs of serving Guam. This is an issue that is virtually certain to be a major point of dispute among the parties if the Board orders a Phase III proceeding.

conversely, but market prices for wool and mutton will reflect the fact that sheep produce both.) Allocation of most of the unattributable costs to some designated primary service could lead to rate levels that are not sustainable in the market. Instead, the unattributable costs need to be allocated based on demand-side considerations.

In addition to the errors of principle, parts of Dr. Nadel's Statement (and of GovGuam's Initial Submission) might be read as implying that GO-11 is an off-the-shelf, "tried and true" method that could readily be applied by the Board to the Guam trade in a Phase III proceeding. Any such reading would be flatly incorrect. Dr. Nadel's Statement in Phase II *already* contains criticisms of and suggested modifications to GO-11 in the context of the Guam trade, before a Phase III proceeding is even ordered. My own testimony in FMC Docket 89-26, analyzing GO-11 for the Guam trade for a different carrier and a different time period, ran to hundreds of pages of text, exhibits and workpapers. The fundamental problems with FDC methods, especially in the context of a small trade, mean that any attempt to apply FDC in a way not grossly inconsistent with economic reality necessarily would involve a great deal of case-specific data collection and analysis. In fact, the only way to be sure that the GO-11 result was not economically infeasible (other than waiting for the Carriers to reduce investment and service quality in response to inadequate tariffs) would be to perform the economically sound tests the Board has already endorsed in its Constrained Market Pricing procedures. Otherwise, there is no way to be sure that the end result of the FDC exercise is even sustainable, let alone reasonable.

In short, even if the Board were to abandon the economic principles it has long recognized in the context of services provided in common and order a Phase III test of overall rate levels based on GO-11, the review ought still, from an economic standpoint, to include tests of the sort the Board and the ICC have created specifically for this economic context, since those are the tests that actually comport with the underlying economic principles. As an economist, I can only conclude that the effort devoted to the FDC part of such a proceeding would be a waste of society's resources.

C. ORGANIZATION OF REMAINDER OF STATEMENT

As noted above, Dr. Nadel's Statement unfortunately does not review the economic principles that are relevant to selection of an appropriate methodology to assess whether overall tariffs are reasonable in circumstances such as these. A correct understanding of these principles is the foundation of any economically reasonable decision. Accordingly, Section II reviews these economic principles. In support of Section II, Appendix B provides relevant quotations from the economics literature and the Board's and the ICC's past decisions. Appendix C provides an extended numerical example of some of the economic concepts discussed in Section II.

With this foundation established, Section III addresses the specific claims made in Dr. Nadel's Statement regarding the appropriate methodology, should the Board conclude that such a review is needed. As indicated above, I find that these claims are supported neither by the relevant principles nor by the facts.

II. RELEVANT ECONOMIC PRINCIPLES

Dr. Nadel's Statement wrongly either ignores or dismisses basic economic principles in at least four areas:

- It fails to recommend application of the tests of tariff levels that regulatory economics teaches are relevant for a service that is more economically provided in common with other services;
- It instead recommends use of a fully distributed cost ("FDC," also known as "fully allocated cost") method to test tariff levels for a service that is more economically provided in common with other services. Yet regulatory economics teaches that such methods are intrinsically flawed and literally try to do the impossible, with problems that are more severe when the service in question is a small part of a large system;
- It recommends reliance on a net book value rate base for a service facing active competition; and
- It appears to recommend (or at least does not caution against) the use of short-term realized returns as a test of whether tariffs are too high.

This section of my testimony addresses the economic principles in each of these four areas in turn.

A. ECONOMICALLY MEANINGFUL TESTS

1. The Economic Standards

The Board and its predecessor, the ICC, have long recognized the basic economic principles that obtain when services are more cheaply provided in common with other services, rather than stand-alone.³ Such a production process is said to exhibit "scope economies."⁴ The issue here is that the Guam trade is one of a number of trades served in common by strings of vessels calling sequentially at several ports, which are in turn part of even larger integrated systems of vessel strings, port facilities, and ground transportation systems. The existence of scope economies implies that it is cheaper to serve Guam as part of such a system than by a dedicated turnaround service involving Guam and one other port, a point that does not appear to be in dispute among the parties.

In the presence of scope economies, tariffs equal to the marginal cost of each service would not generate enough revenue to recover total cost. The first-best economic outcome is nonetheless to set tariffs equal to marginal cost and to recover the remaining, "unattributable" costs of the shared resources in other ways. If the services are collectively to be self-supporting, however, it is necessary to depart from marginal cost pricing, typically by raising the tariffs of the various services by enough, in total, to recover the unattributable costs, and hence the total cost of all the services combined.

The issue to be decided here is how to do so, if the Board decides that a Phase III hearing is necessary. The FMC, when evaluating overall carrier revenue levels, did so with an accounting-cost allocation method known as GO-11. Dr. Nadel's Statement recommends continuation of the GO-11

³ See generally the ICC's Coal Rate Guidelines, Nationwide, ICC 2d 520 (August 8, 1985), Ex Parte No. 347 (Sub-no. 1) "(Coal Rate Guidelines)", or the Board's Decision in Ex Parte No. 347 (Sub-No. 2), Rate Guidelines -- Non-Coal Proceedings (December 27, 1996).

⁴ Scope economies arise when it is cheaper to provide services together rather than separately. "Scale economies" arise when the long-run average cost of an individual service goes down if more of it is produced.

approach, and accounting cost allocations for joint and common costs are the topic of the next part of this section. The ICC and the Board, however, have instead used methods that are based on the principles of regulatory economics.

In particular, regulatory economics teaches that the unattributable costs cannot be added to rate levels without explicit consideration of the demands for the various services; otherwise, an allocation that cannot survive in the market may arise. The economics literature has produced a family of procedures known generally as “Ramsey pricing,” named after the British economist and mathematician Frank Ramsey, to derive the optimal markups of prices over marginal cost under a host of assumptions about the nature of demand for the various services. The simplest form of Ramsey pricing is known as the “inverse elasticity rule.” That rule says the markups should be proportional to the inverses of the elasticities of demand for the various services. The reason is that this system minimizes the overall loss in “consumer surplus” due to the deviation of prices from marginal cost.⁵ Services with less elastic demand (which typically are higher-valued services with fewer close substitutes) end up with higher markups to achieve this end. More complicated versions of Ramsey pricing consider cross-elasticities of demand and potentially other factors.

Formal Ramsey pricing is not widely applied. One reason is that it is extremely data-intensive, so much so that the econometric estimation errors and the impact of uncertainties in how to specify the equation to be estimated can be quite large relative to the differences in proposed markups. A second reason is that the customers with the least elastic demands may be those that regulators believe require extra protection from high prices, precisely because they have the fewest alternatives. Nonetheless, the central Ramsey pricing insight, that markups should be based on demand-side considerations rather than accounting cost allocations, remains useful.

⁵ “Consumer surplus” is the value of the area under a demand curve in excess of the price charged. It embodies the sum of the values consumers get from the good or service in excess of its cost to them. In principle, Ramsey pricing, which was not derived in the regulatory context, tries to minimize the loss of the sum of consumer and producer surplus (which is the analogous concept for the supply curve), but the normal focus in the regulatory context is on consumer surplus.

2. ICC/Board Implementation of the Standards

The ICC used the Ramsey pricing concept as a guide in its establishment of Constrained Market Pricing ("CMP"). In the Coal Rate Guidelines, regarding proper allocation of the unattributable costs, the ICC stated first that,

Therefore, we expressed our commitment to the concept of demand-based differential pricing, whereby the carrier may price its services according to the varying demand elasticities for them. (pp. 4-5, footnote omitted)

Later the same decision stated that,

The differential between marginal costs and average costs cannot be assigned directly to specific movements by any conventional accounting methodology. ... These are the costs which must be covered through differential pricing. (p. 8)

The theoretical solution to which the ICC aspired is Ramsey pricing. In ICC's own words,

"Ramsey pricing" is a widely recognized method of differential pricing, that is, pricing in accordance with demand. Under Ramsey pricing, each price or rate contains a mark-up above the long-run marginal cost of the product or service to cover a portion of the unattributable costs. The unattributable costs are allocated among the purchasers or users in inverse relation to their demand elasticity. Thus, in a market where shippers are very sensitive to price changes (a highly elastic market), the mark-up would be smaller than in a market where shippers are less price sensitive. The sum of the mark-ups equals the unattributable costs of an efficient producer. (p. 8, footnote omitted)

However,

We [the ICC] did not consider it to be practical to impose pure Ramsey pricing as a regulatory requirement for across-the-board application in all cases. ... We concluded that while formal Ramsey pricing is useful as a theoretical guideline, it is too difficult and burdensome for universal application....

As an alternative to pure Ramsey pricing, we proposed Constrained Market Pricing. Under CMP, the carriers are expected to use the market demand which they observe as the basis for their pricing, but they need not calculate the precise elasticity of demand for every movement. ... We are satisfied that the constraints and incentives CMP contains should lead to rates approximating Ramsey prices and protect captive coal shippers from possible carrier abuse of pricing discretion. (pp. 8 - 9)

For present purposes, the central features of CMP are:

- It sets the long-run marginal cost ("LRMC") of a service as a floor for measuring the unattributable joint and common costs of the combined services, so other shippers are not charged for the revenue shortfall below LRMC from services that are uneconomic in the long run.⁶
- It sets the stand-alone cost ("SAC") of a service as the ceiling for the tariff it is charged:

The stand-alone cost, as we define it here, approximates the full economic costs, including a normal profit, that need to be met for an efficient producer to provide service to the shipper(s) identified. This cost calculation produces a simulated competitive price standard against which actual rates can be compared.⁷
- It mandates that the services supplied competitively be charged as much of the unattributable costs as the traffic will permit.^{8,9}

⁶ Coal Rate Guidelines, p. 20-23. Note that this does not mean tariffs below LRMC are impermissible in the short run, if they make short-run economic sense. As I read the Coal Rate Guidelines, it means only that "captive customers" will not be required to bear the revenue shortfalls of services that cannot at least pay their own marginal costs in the long run.

⁷ Coal Rate Guidelines, p. 11.

⁸ Coal Rate Guidelines, p. 24. Note that from a purely technical standpoint, this is a somewhat higher markup over LRMC for the more competitive services than strict application of "Ramsey pricing" as defined precisely in the economics literature would imply, and instead represents an approach sometimes called the "maximum competitive contribution method," or "MCCM." That is, the basic Ramsey formula for a given markup is:

$$[(\text{Price-Marginal Cost}) / \text{Price}] = (\text{Constant} / \text{Elasticity of Demand}).$$

If the Constant = 0, prices are set to marginal cost. If the Constant = 1, the prices maximize profits. For pure Ramsey pricing, the constant is set equal to the same value for all services, which is just high enough to meet the revenue requirement. Under the MCCM, the constant is set equal to 1 for competitive services, which lets it be somewhat lower than under the Ramsey optimum for non-competitive services. This is a distinction of little practical importance in the present context, although it has been the subject of debate elsewhere (e.g., postal rate hearings). However, it is worth noting that the MCCM criterion is automatically satisfied when the carrier providing the regulated service provides the other services in an unregulated setting, since the carrier will attempt to earn as much as possible in those markets.

⁹ For completeness, I will also note that GovGuam's Initial Submission at pages 18-19 completely mischaracterizes my testimony in Docket 89-26 on the topic of Ramsey pricing and markups for the
(continued...)

These three features of CMP provide a framework for testing the reasonableness of tariffs to Guam, should the Board decide a Phase III test is required, that is in accord with the teachings of regulatory economics.¹⁰

B. FULLY DISTRIBUTED COST

Dr. Nadel's Statement argues that the Board should use some form of the GO-11 methodology used by the FMC when it had jurisdiction over the Guam trade. GO-11 is an FDC methodology. The FDC approach attempts to allocate a company's total costs, including the costs of the capital employed, among the various services that are provided by the company, to try to measure the cost of providing one or more of the services for regulatory purposes. Costs incurred uniquely for a particular service are supposed to be allocated to that service, although there can be debates about this step. The remaining costs, for the resources used in common with other services, are allocated according to the proportion each service's relative share of some particular quantity (e.g., tonnage, ton-miles, "FEU"-miles in the ocean

⁹ (...continued)

Guam trade. The passage it cites from (an uncorrected version of) my transcript is part of an extended hypothetical that I answered as asked, but which the passage itself makes clear I did not accept as a valid description of the actual circumstances or as characteristic of my own recommendations. In fact, while acknowledging that the pure form of Ramsey pricing is the economically optimal policy in theory, my Docket 89-26 testimony was quite explicit concerning its limitations in practice, and elsewhere I instead expressed a preference for the maximum competitive contribution method in circumstances such as the Guam trade. (See, for example Docket 89-26 Transcript pp. 202-207 (June 15, 1993).) Thus, my stated views at the time regarding implementation of Ramsey pricing were very much in accord with those stated in the Coal Rate Guidelines, as they are today.

¹⁰ However, it must be noted that the LRMC standard for ocean carriers needs to take account of the fact that the vessel strings can only call at a limited number of ports and still maintain a competitive schedule. This imposes a certain "lumpiness" in the analysis of whether a service recovers at least the marginal cost of providing the service. Formally, long-run *marginal* cost consists of the long-run (i.e., no-sunk-costs) cost of producing the last unit. However, in ocean shipping the need to call at a countable number of ports implies only an "incremental" cost, rather than a "marginal" cost, analysis will fully test the reasonableness of tariff levels for a service, should the Board decide that a Phase III hearing is needed. That is, the test is "all or nothing" with respect to whether the string actually includes the port call in question. Here I assume that this issue can be (and would have to be) addressed as part of any such Phase III hearing, and so relegate it to the level of a footnote.

shipping context,¹¹ time required, etc.) that is thought to embody the principal source of cost causation. Such “allocation ratios” or “distribution keys” in principle divide the entire pool of the regulated firm’s annual costs among the specific services it provides. They typically are the source of additional debates.

A number of potential problems can arise in an FDC application. The first and most fundamental problem is that the economics literature has demonstrated that the FDC approach in the presence of scope economies quite literally attempts to do something that is impossible. That is, FDC attempts to determine *the* actual total or average cost of a particular service that is provided in common with other services. Yet it is literally impossible to determine the total or average cost of a particular service when providing the service in common with others is cheaper than providing the services individually. Any such attempt is completely arbitrary, akin to trying to allocate the cost of sheep fodder between the cost of producing mutton and that of producing wool. Of course, it follows immediately that if scope economies make it impossible to calculate *the* cost of providing a service, it is also impossible to calculate *the* rate of return on the service. Yet that is precisely what GO-11 purports to do, and that is the purpose for which Dr. Nadel’s Statement recommends it.¹²

That calculation of the average cost or rate of return in the presence of scope economies is literally not possible is not a new or isolated finding. Rather, it has been mainstream regulatory economics for decades. It also is a finding that appears to be very much in accord with the ICC’s and the Board’s procedures in other areas, which do not rely on FDC. Appendix B contains quotations from the economics literature and from the ICC and the Board regarding the problems with FDC. Not least of these problems is that the resulting allocation may not be sustainable in the marketplace, since FDC intrinsically pays attention only to supply-side issues (cost allocation), not demand-side constraints. Moreover, even taking a purely supply-side focus, costs are in fact caused by many factors. Selection of a single factor as a

¹¹ An “FEU” is a “forty-foot equivalent unit,” representing a standard size of container.

¹² Nadel at pp. 22 and 24, for example.

“distribution key” will inevitably distort a more complicated reality in a way that is intrinsically economically arbitrary, and sometimes economically material.¹³

If the Board were to try to apply GO-11, it would need to consider two issues of particular importance in the context of the Guam trade, relative to other services the Board regulates:

- The Guam trade is a very small part of the services provided by the strings of vessels that call at Guam and an even smaller part of the carriers’ overall integrated operations; and
- Ocean-going vessels possess a flexibility that gives rise to certain additional constraints that are not as binding for railroad cost analyses.

The first point is important because small differences in the overall allocation of a particular accounting cost can be very material in the context of a small trade. Suppose by some measure 90 percent of the carrier’s business is in a particular regulated trade, with the rest unregulated. If the job is to allocate a cost between regulated and unregulated services and the distribution key at first says 90 percent goes to the regulated trade, a modification that leads to a plus or minus five percent change in the allocation ratio will not have much effect on regulated tariffs: somewhere between 85 and 95 percent of the total system cost will be allocated to the trade regardless. However, the same change has an order of magnitude more impact if the regulated trade is the smaller rather than the larger part of the carrier’s business. The difference between allocations of 5 and 15 percent of a system-wide cost is clearly more material, if the regulated trade is the smaller one. Even the most ardent advocate of a fully distributed cost approach to ratemaking ought to be troubled by the enormous sensitivity of the results to alternative implementation details when the service in question is relatively small.

¹³ For example, it might be thought that an FEU is an FEU, or an FEU-mile is an FEU-mile, and thus that costs could be allocated meaningfully according to FEU-miles, for example. Yet I understand that a flatrack may protrude into container slots on either side, taking up not only the capacity of its own slot, but that on either side and of any slot that may remain above these three. The cost per container of a vessel containing only flatracks could be considerably higher than that containing only conventional containers, yet the number of FEU-miles allocated to that vessel would be lower!

The second point, vessel flexibility, is important because railroad tracks and rights of way are "sunk costs" in a way that vessels are not. Vessels can be redeployed much more readily than rail tracks can be moved. Vessels can be sold and used in entirely different trades to a much greater degree than rail tracks, also. This implies, from a practical as well as a theoretical standpoint, that the "opportunity cost" of the resources devoted to the Guam trade would need to be considered in applying the relevant tests if the Board orders a Phase III.¹⁴

This is a significant problem for FDC methods such as GO-11, since opportunity costs by their very nature are not part of the cost pool the FDC scheme is attempting to allocate. Yet FDC's failure to recognize opportunity costs not only contributes to its producing an economically arbitrary tariff level, but also poses the risk of service degradation or actual exit from the trade to a much greater extent than needs to be considered for railroads. GO-11 is an unavoidably flawed tool for analyzing opportunity costs, even if it had no other problems at all, yet such an analysis is a necessary part of any review of whether the tariff levels in the Guam trade are reasonable.

Appendix C contains an extended numerical example in the context of ocean shipping to illustrate the concepts developed to this point of this section of my testimony. It illustrates some of the problems with FDC and why they are particularly acute for a small service. Since the Board is already familiar with and has adopted many of the relevant economic concepts, I do not see a need to summarize its contents in the body of my testimony. However, I make it available in case the Board wishes additional clarification of what I mean by any of these points.

¹⁴ In the context of CMP, the need to consider opportunity costs arises because the trades served by the carriers' strings of vessels need to operate on certain schedules to remain competitive. As noted above, that implies limits on the number of port calls. For example, an alternative to a call at Guam is a reconfigured string that calls at another port, with Guam then served in a less efficient way, as the other port may be now. In essence, the measure of the incremental cost of providing the service as configured must take into account the opportunity cost of the next best configuration, else the carrier will find it optimal to reconfigure. The feasibility of reconfiguration is enhanced by the fact that the Guam trade is relatively small, and an analysis of this issue was part of the carriers' presentation in Docket 89-26. Again, I view this as an issue that would need to be addressed more fully only if the Board did order a Phase III.

C. USE OF BOOK VALUE RATE BASES WITH ACTUAL COMPETITION

Competitive prices and marginal costs are based on current values, not historical values. Traditional public utility rate regulation, however, often measures the "rate base" -- the value for regulatory purposes of the assets used to provide service -- at net historical cost. This implies, for example, that the cost of electricity generated with an old plant could be lower than the cost of electricity generated with a new plant (at least in states where electric power prices are still regulated). This does not happen under competition.

The incompatibility of regulated prices from power plants of different ages does no lasting harm as long as the power is sold as part of a regulated entity's franchised service. However, it can create very material problems when head-to-head competition and historical-cost rate regulation both exist. In the present context, this is potentially an issue because FDC methods generally and GO-11 specifically base tariffs on historical costs, and in particular, on a historical cost measure of the assets employed.

That is, the FDC capital charge amount to be allocated generally is based on the multiplication of a book-value rate base by a rate of return that includes compensation for inflation, plus depreciation and taxes. Competition does not set capital charges explicitly; instead, they are implicit in competitive prices. But a basic feature of competition is that the price does not depend on the age of the assets used in production -- the price a farmer gets for tomatoes does not depend on when he or she purchased the farm.¹⁵ The price of a regulated service traditionally does depend on the age of the asset, however. Therefore, the capital charges implicit in competitive prices logically must differ from those under rate regulation.

¹⁵ I am indebted to Prof. Stewart C. Myers for this particular analogy, which we sometimes call the "tomatoes theorem."

This logical inference proves to be correct.¹⁶ Competition in equilibrium implicitly provides investors with a rate of return that does not include compensation for general inflation, on an asset base that is higher than it would be otherwise because of inflation. This means that regulated tariffs are higher than competitive prices early in the life of a new asset (because of the inflation premium in the rate of return), while competitive prices are higher later on (because the value of the asset base grows with inflation). A company facing both regulation and competition can end up getting “the lower of cost or market,” to borrow the accounting phrase.

The difference between regulated and equilibrium competitive capital charges for an asset is illustrated in Figure 1. The figure assumes a \$1,000 investment, a 20-year asset life, a real (i.e., no-inflation) cost of capital of 5 percent, and an inflation rate of 3 percent. It ignores taxes, which complicate the picture but do not change the implications. These particular assumptions are not important. What is important is that if a company consisting entirely of this asset were constrained by both regulation and competition, the tariffs it could charge would track the “competition” line through roughly year 8, and after that they would track the “regulation” line. Since each line provides cash flows with a present value just equal to the \$1,000 initial cost, capital charges constrained to whichever line is lower are not compensatory.

¹⁶ See, for example, Stewart C. Myers, A. Lawrence Kolbe and William B. Tye, “Inflation and Rate of Return Regulation,” *Research in Transportation Economics*, Volume II. Greenwich, CT: JAI Press, Inc., 1985, or A. Lawrence Kolbe, William B. Tye and Stewart C. Myers, *Regulatory Risk: Economic Principles and Applications to Natural Gas Pipelines and Other Industries*, Boston: Kluwer Academic Publishers (1993), Chapter 4.

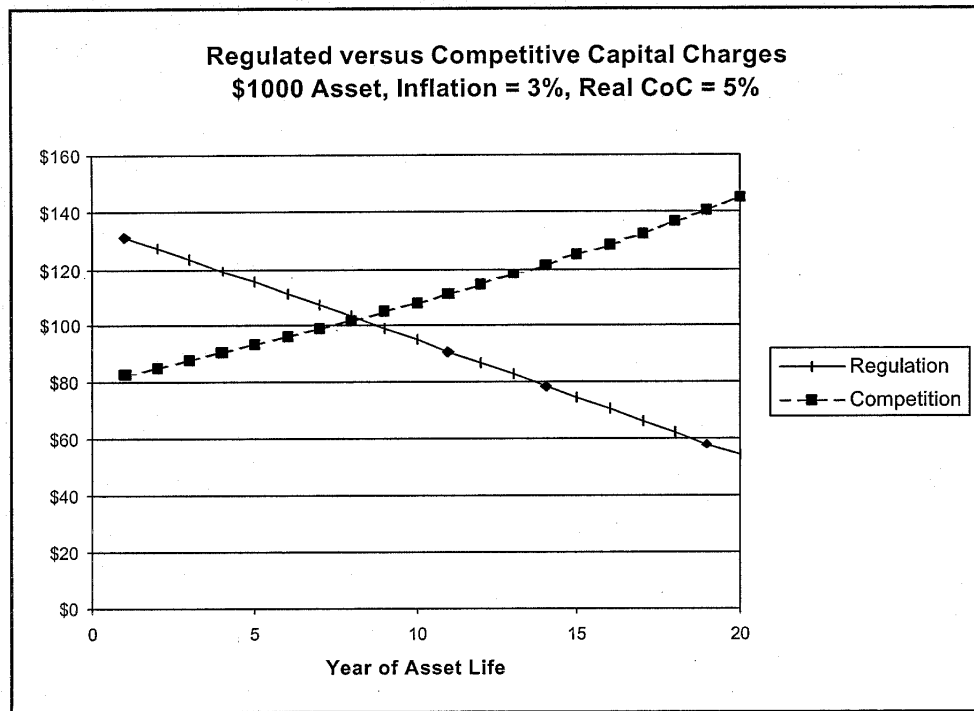


Figure 1

Of course, while the graph is correct on average for a single-asset company, a real company's actual circumstances are certainly more complicated than depicted in the graph. First, real companies are composed of many different vintages of assets. The actual picture for a company at any time is effectively the sum of many such graphs. However, merely combining many assets essentially never produces regulated capital charges equal to competitive capital charges.¹⁷

Second, sometimes regulated tariffs are set with a different pattern than shown in the graph -- they may be level in nominal terms, for example. This can mitigate the problem, but it does not eliminate it. For

¹⁷ See Myers, Kolbe and Tye, *op. cit.*, 114-116. One very special perpetual growth condition can result in regulated capital charges equal to competitive capital charges, but it would be an accident if this condition happened to hold, and the slightest deviation from this condition would throw things off in a way that would take years to undo even if the special growth condition were immediately reestablished.

example, a flat line for the "regulation" part of the picture still would start higher and finish lower than the "competition" line.

Third, if a tightly applied book-value rate base standard were adopted as part of any Phase III review of tariffs in the Guam trade, the competition would in part be from another regulated carrier, in addition to the foreign carriers supplying goods from other locations. That means that part of the problem would be from different sets of regulated capital charges (due to vessels of different vintages, for example), not solely regulated versus competitive capital charges. Yet the fact that vintage matters to regulated capital charges means the same basic issue arises, since the two companies' regulated capital charges would essentially never be equal.

Fourth, the graph depicts equilibrium capital charges, and regulated and competitive prices react in different ways to fluctuating economic conditions. Competitive companies' prices fall (at least in real terms) in hard times and rise in good times. Regulated companies' prices may actually rise in hard times, as the fixed costs are recovered over a smaller service volume. While regulation without competition can set tariffs that recover full cost even in hard times, competition may undercut those tariffs even if the competitors' equilibrium (i.e., no-shortage) capital charges happened to be equal to the regulated capital charges.

In short, while the real situation is considerably more complicated than the graph, the basic message remains: if (1) regulation sets tariffs that are expected just to recover capital costs and does not let the company charge more than that, and (2) a company sometimes faces competition, either from another regulated company or from unregulated ones, that prevents it from charging that much, then on average the company does not recover its capital costs.

A partial remedy for this problem is at least to base tariffs on capital charges that mimic the pattern in competitive equilibrium. This task is not trivial, although the basic procedures required have been worked out in the literature.¹⁸ Again, I see this as an issue that would need to be addressed only if there

¹⁸ The most general treatment of this issue of which I am aware is William B. Tye and A. Lawrence Kolbe, "Optimal Time Structures for Rates in Regulated Industries," *Transportation Practitioners Journal* 59, 176-199 (Winter 1992).

were a Phase III of this proceeding that relied on some variant of GO-11, so I do not go into it more deeply here.

D. EXPECTED VERSUS ACTUAL RATES OF RETURN

To compensate investors adequately for the time value of money and risk, tariffs need to be set so the expected rate of return on the amount invested is equal to the "cost of capital" for investments of that level of risk.¹⁹ The cost of capital may be defined as "the expected rate of return in capital markets on alternative investments of equivalent risk." In both of the preceding sentences, "expected" is used in the statistical sense, to indicate the mean of the distribution of possible outcomes.²⁰ Thus, the standard cost of equity estimation techniques, when implemented correctly, attempt to determine the "expected" rate of return on the stock.²¹ Similarly, economically fair regulation requires an "expected" realized rate of return

¹⁹ For general discussion of the cost of capital, see, for example, Brealey and Myers, *op. cit.*, Chapters 7-9 and 19. A discussion aimed specifically at the context of rate regulation is Kolbe, Read and Hall, *op. cit.*

²⁰ Confusion arises if one applies common dictionary meanings of "expected": "to consider probable or certain" or "to consider reasonable, just, proper, due, or necessary" (*Webster's Third New International Dictionary*, Volume I (1966, p. 799). These meanings are altogether different from the statistical meaning of the cost of capital as an *expected* (or average) return.

My testimony uses "expected" only in the statistical sense:

...the idea of expectation of a random variable is closely connected with the origin of statistics in games of chance. Gamblers were interested in how much they could "expect" to win in the long run in a game, and in how much they should wager in certain games if the game was to be "fair." Thus, expected value originally meant the expected long-run winnings (or losings) over repeated play; this term has been retained in mathematical statistics to mean the long-run average value for any random variable over an indefinite number of samples. This holds whether a large number of samples will actually be conducted or whether the situation is a one-trial affair and we consider hypothetical repetitions of the situation. Over a long series of trials, we can "expect" to observe the expected value. At any *single* trial, we in general cannot "expect" the expected value; usually the expected value is not even a possible value of the random variable for any single trial. . . .

W. L. Hayes, and R. L. Winkler, *Statistics*, Vol. I, New York: Holt Rinehart & Winston (1970) at 136-137.

²¹ See, for example, A. Lawrence Kolbe and William B. Tye, "The Fair Allowed Rate of Return with (continued...)

on the amount invested, usually measured by the rate base, equal to the cost of capital that the market requires.²²

This is in shippers' as well as carriers' interests. Inadequate returns lead to inadequate investment, which degrades service in the longer run. This is of particular concern when the assets can be redeployed at relatively low cost, as in the case of ocean shipping (relative to, for example, railroad tracks or power plants). The "longer run" can be considerably shorter when assets are mobile, with the potential for more immediate harm to customers as the regulated entity adapts to the inadequate return.

It is a simple fact that realized returns for a rate-regulated company vary year to year. Suppose regulators looked at realized returns on the rate base, after the fact, and decreed that those higher than the cost of capital were impermissible, but those lower than the cost of capital were all right. Suppose further that regulators lowered tariffs when they discovered that realized returns were above the cost of capital. Then on average, investors could not expect to earn the cost of capital on the rate base. The average of a ceiling return equal to the cost of capital in good years and a return below the cost of capital in bad years is a return below the cost of capital on average. As just noted, such a return does not adequately compensate investors for the time value of money and risk. This finding follows immediately from (1) the definition of the cost of capital as an expected rate of return, and (2) the law of averages.²³

²¹ (...continued)

Regulatory Risk," *Research in Law and Economics* 15, 129-169 (1992) at 143-151.

²² This is the standard economic interpretation of the U.S. Supreme Court's opinions in *Bluefield Waterworks & Improvement Co. v. Public Service Commission* 262 U.S. 678 (1923); *Federal Power Commission v. Hope Natural Gas*, 320 U.S. 591 (1944), and *Duquesne Light Co. v. Barasch*, 488 U.S. 299 (1989). The equivalence of the financial concept of the cost of capital and the regulatory standard of an appropriate rate of return on rate base was worked out in Stewart C. Myers, "The application of finance theory to public utility rate cases," *The Bell Journal of Economics and Management Science* 3, 58-97 (Spring 1972).

²³ However, there can be confusion about this simple point among those who do not understand that the cost of capital is an expected rate of return in the statistical sense, and so believe that it somehow would automatically include compensation for such a regulatory regime, if it were adopted. Extended discussions of this and related issues are available in A. Lawrence Kolbe and William B. Tye, "The *Duquesne* Opinion: How Much 'Hope' Is There for Investors in Regulated Firms?", *Yale Journal on Regulation* 8, 113-157 (Winter 1991); Kolbe and Tye, "The Fair Allowed Rate of Return with Regulatory Risk," *op. cit.*, and Kolbe, Tye and Myers, *op. cit.*

This issue would be relevant here if the Board were to decide on a Phase III hearing and lower the tariffs because the carriers' *realized* rate of return happened to exceed the cost of capital in a particular year. That could be due to good luck that year, not to the existence of an *expected* rate of return on the rate base, however defined, that exceeded the cost of capital. Yet only the latter condition would indicate excessive tariffs, assuming the rate of return on the service could somehow be measured correctly in the first place,²⁴ and expected returns on risky investments by their very nature cannot be directly observed.

As in other areas already discussed, the ICC has recognized this problem as well. The Coal Rate Guidelines say,

We emphasize that revenue adequacy is a long-term concept that calls for a company, over time, to average a return on investment equal to its cost of capital. In any industry there are business cycles producing years during which earnings exceed projections and years when they fall short of the target. ... Consequently, a "revenue adequate" carrier need not continually readjust its rates in an effort to keep its revenues at the precise point of revenue adequacy each year.²⁵ (pp. 18-19, emphasis in original)

Thus, any attempt to perform an FDC exercise for the Guam trade faces two fundamental problems:

- It is impossible to measure "the" rate of return on an individual service with scope economies, a problem of particular importance for small services; and
- Even if some set of FDC procedures were nonetheless adopted for regulatory purposes, whatever rate of return is measured with those procedures does not correspond to the expected rate of return on the investment except by a highly unlikely accident, so it is unclear what use could be made of the information, anyway.

²⁴ As noted earlier, FDC attempts to measure "the" rate of return on a service provided with scale economies, but this effort is literally impossible because there is no well defined rate of return on such a service.

²⁵ For completeness, I note that revenue adequacy on a *system-wide* basis can be perfectly well defined even when scope economies make such a standard meaningless for individual services.

Together, these two problems imply, in my judgment, that the Board should forego the economically meaningless FDC exercise of GO-11 in favor of an application of the economically meaningful principles the Board has already recognized, endorsed and implemented in other contexts, should the Board deem a Phase III hearing necessary.

III. SPECIFIC COMMENTS ON DR. NADEL'S STATEMENT

With the above principles established, it is now possible to comment specifically on Dr. Nadel's Statement. Dr. Nadel's Statement either ignores, misstates or misinterprets the relevant economic principles in a way that puts his recommendations very much at odds with the mainstream literature on regulatory economics and with past statements by the ICC and the Board (which are summarized in Appendix B). His Statement is also self-contradictory, on the one hand painting GO-11 as an established methodology that performs its job "extremely well" (Nadel, p. 5) and on the other already starting to talk about changes that he would recommend if a Phase III proceeding that relies on GO-11 were established.²⁶ Here I address these two issues in turn.

A. ERRORS OF PRINCIPLE

The errors of principle in Dr. Nadel's Statement take a number of forms, sometimes mixing things that are true with those that are incorrect. Here I attempt to identify and clarify the most egregious errors. However, I would like to make clear that my failure to comment on a particular passage or sentence does not necessarily imply agreement with that passage or sentence.

To begin, on p. 5, Dr. Nadel's Statement asserts that GO-11 satisfies the dictates of sound regulatory policy. It claims that "longstanding, valid, regulatory principles" mean the Guam trade needs a method that "(a) protects the 'captive shippers' of Guam ..., while (b) still ensuring that the rates are high

²⁶ GovGuam's Initial Submission in Phase II goes even further, referring at p. 12 to GO-11 as "tried and true" despite the recommendations for change that its own witness is already making.

enough so that the carriers have a profit-based incentive to serve the trade...” It then claims that the GO-11 accomplishes these goals.

I agree that longstanding regulatory principles require a balance between protecting shippers from excessive rates while ensuring an adequate return to the carriers. But for reasons discussed in the previous section, I do not agree that GO-11 is the way to achieve these goals. Endorsement of a general principle does not imply automatic acceptance of some claimed way to achieve that principle. In fact, sometimes the claimed way to achieve the principle can do the exact opposite.²⁷ In the present context, the first question is whether the existing level of competition already achieves these goals. Only if the Board decides competition is inadequate is any regulatory methodology needed. In that case, for reasons discussed in the previous section, it is clear from an economic perspective that the Board should follow its own and the ICC’s precedents and adopt economically sensible standards. It should not regress to an FDC approach of the kind the ICC rightly (again, from an economic perspective) rejected nearly two decades ago, be that FDC approach GO-11 or something else.

Page 5 of Dr. Nadel’s Statement also asserts that “traditional utility rate regulation, in which the carrier is assured actual cost recovery plus a return on and of capital, is most appropriate where there is insufficient ... competition ... to control prices...” First, since it is not possible to identify “the” average or total cost of the Guam trade, as discussed above, this statement recommends that the Board attempt the impossible in the case of the Guam trade.²⁸ Second, even if something of the sort were to be attempted, “traditional utility rate regulation” does not envision setting rates where head to head competition already

²⁷ In a similar vein, the fact that GovGuam at p. 6 of its Initial Submission can quote the textbook by Alfred Kahn to the effect that the optimal mix of institutional arrangements may differ from industry to industry does *not* mean Prof. Kahn’s text endorsed FDC. In fact, the contrary is true, as demonstrated in Appendix B.

²⁸ In a similar vein, p. 22 claims that “[a]pplication of GO-11 prevents the carriers from earning excess profits, and ensures that the carriers earn a proper rate of return.” Economically, this is simply incorrect, since it flies in the face of long-recognized economic principles. There is no way to measure *the* rate of return on the Guam trade, since there is no unique measure of the total or average cost of service in the presence of scope economies. Only boundaries of the sort established under the Board’s CMP can accurately test whether the tariffs are reasonable, should such a test be deemed necessary.

exists. As noted above in Section II, Part C, if capital charges under an attempt at such a system were based on a historical cost rate base, additional problems would arise.

Page 5 of Dr. Nadel's Statement then asserts that "cost allocation issues must be addressed" in the case of "joint product economics." If a sound regulatory methodology needs to be and is adopted, it is true that the LRMC (or long-run *incremental* cost, in the case of ocean shipping) would need to be analyzed, and that part of that analysis would involve identification of costs specific to the Guam trade. However, it is not merely untrue that allocation of the unattributable costs "must be" addressed with "joint product economics," it is in fact impossible to perform that task in an economically meaningful way.

Page 6 attempts to equate "cost based regulation" with GO-11. It is possible to apply "cost-based regulation" to determine the "revenue requirement" of an entire system. It is not possible to measure "the" revenue requirement of an individual service supplied under scope economies. Page 6 also states that "[t]he GO-11 is based on the carriers' actual costs. It is not based on hypothetical costs; it is not based on inferred costs; and it is not based on rates from other, presumably comparable, trades." It is true that part of the starting point for FDC methods such as GO-11 is the actual costs of the carriers' *overall systems*.²⁹ However, it again is not true that "actual" total or average cost can be measured for *any* service supplied with scope economies, a problem that is particularly acute for a small part of a large system. Additionally, in the context of ocean shipping, opportunity costs need to be considered in a way that may not be true in other contexts. As noted earlier, the inability of an FDC approach such as GO-11 to consider such costs is an additional *defect* of the method in the current context, not the advantage that this passage implies.³⁰

Page 6 asserts that the only danger is that a GO-11 estimate of costs for the Guam trade would be too high, because, it states, "on a carrier's backhaul, the incremental costs are extremely low; they can even be zero. Therefore, there is very little practical danger, if any, of the GO-11 yielding rates that are

²⁹ However, as noted above, part of the starting point of GO-11 is a historical-cost measure of the capital charges of the system. This measure does not reflect economic cost, which is current not historical, and it creates additional difficulties when competition for the regulated service exists.

³⁰ I would also note in passing that Dr. Nadel's Statement itself spends a certain amount of time comparing Guam trade rates with those from other trades, at pages 7 and 21, for example.

too low to induce the carriers to serve the trade.” This passage at least acknowledges one of the economically relevant considerations for a reasonable assessment of tariffs in the Guam trade, should Phase III be necessary: the incremental cost of serving Guam in the way the carriers now do. However, it attempts to resolve what would be a major issue between the parties in a Phase III hearing, (i.e., the incremental cost of serving the Guam trade) by assertion, literally without quantitative analysis.³¹ There clearly are extra costs to serving the Guam trade, as well as potential benefits. Attempts to resolve this complicated question by assertion, are, at best, extremely premature.

Page 7 goes on to state that as long as all incremental costs of “a Guam call” are covered, “any share that Guam contributes to covering the common costs is a net benefit to the carrier and an incentive to call Guam.” It asserts that most of the incremental costs are direct costs and so automatically covered by GO-11. It then says since most of westbound traffic is backhaul, “the container repositioning costs would be incurred by the carrier anyway, since they are costs that are caused by the fronthaul cargoes, and are not incremental costs for the backhaul.” It says that GO-11 nonetheless covers the backhaul costs, “thereby insuring the carrier far more than adequate revenues.” It also speaks of offload and onload costs as “unavoidable” because “they become sunk costs once the carrier makes the decision to carry Eastbound cargo.” The same basic theme reappears at pages 18-19 and page 22 of Dr. Nadel’s Statement.

Part of these passages makes the same error discussed immediately before, to assert the answer to a complicated analytical question without doing the analysis. But they also introduce a new and very fundamental error, which is that it is fundamentally arbitrary to ascribe primacy to one service supplied under scope economies (e.g., by labeling it a “fronthaul” service) and to treat the other service as a secondary one (by labeling it “backhaul”) that need only recover any small amount over incremental cost to be valuable. It is intrinsic to the nature of scope economies that the benefits end up being shared among the services provided, whether through the forces of competition or the acts of regulators. No service is

³¹ Note that from both an economic and a practical perspective, the issue of the incremental costs of the Guam trade ought to be addressed even if the Board were to reject its and the ICC’s prior statements recognizing the relevant economic principles and regress to an FDC approach such as GO-11 instead. The reason is that Phase III would then have to spend an enormous amount of effort to try to modify GO-11 to a form that did minimal damage to economic reality. Even with such an effort, the only way know for sure if the final FDC outcome was reasonable and sustainable in the Guam trade context would be to perform the economically sensible tests that the Board’s CMP standards already promulgate.

primary, and none secondary, for purposes of regulatory analysis. Instead, all services must at least recover their LRMC, and the issue of the recovery of the unattributable costs must be based on demand-side considerations. Passages cited above from the Coal Rate Guidelines make clear that the Board and its predecessor agency have long recognized this principle. It is simply economically incorrect to assert that *any* contribution over an accounting-based measure of incremental cost for some service viewed as secondary should be seen as sufficient, since this may lead to a failure to recover total costs -- "revenue inadequacy" -- for the system as a whole.³² This is true of all systems exhibiting scope economies, but it is particularly true in the context of the Guam trade, given the importance of opportunity costs to an economically meaningful incremental cost analysis.

Page 8 Dr. Nadel's Statement asserts that the threat of GO-11 caused the carriers to flee FMC jurisdiction, and pp. 8 and 14 imply that if the Board were to adopt GO-11 in a Phase III proceeding, it would find that the carriers were earning too much during the dispute period. Of course, I would strongly recommend against a decision to adopt GO-11 for all of the reasons already stated. However, I would also note that as a logical matter, even if it were true that GO-11 caused the carriers to flee FMC jurisdiction, that would not imply that the Board should adopt GO-11, nor that a version of GO-11 that was modified to not do gross damage to the principles that the Board and its predecessor have long endorsed would reach the conclusion Dr. Nadel's Statement envisions for the Carriers and period in dispute here. Moreover, given the greater flexibility of ocean shipping assets relative to assets for other rate-regulated companies (such as railroads or electric utilities), an application of GO-11 that did gross damage to the economic principles that the Board and ICC have long endorsed (e.g., that accepted the short-run realized rate of return as a relevant measure of long-run expected returns, or that ignored

³² For example, suppose two services, E and W, can be provided for a combined cost of \$200. The cost of E if W is already provided is \$80, and the cost of W if E is already provided is \$60. E would cost \$150 stand-alone and W would cost \$130. Finally, E and W customers are each willing to pay a maximum of \$100 for the service. The obvious equilibrium is tariffs of \$100 to each group of customers. However, if the E service were regarded as "primary" and if that view were used to justify tariffs of, say, \$65 to the W customers (which covers their incremental costs of \$60 and makes a \$5 contribution to the unattributable costs), E customers would have to be charged $(\$200 - \$65) = \$135$ for the E service. This is below the \$150 stand-alone cost of the E service, but is more than E customers are willing to pay. The end result would be that no service would be provided to either customer group by a carrier constrained in such a fashion.

demand-side factors), could cause substantial harm not only to the carriers, but to Guam as the carriers reacted to the economic incentives that non-compensatory tariffs would create.

Finally, pages 18-19 of Dr. Nadel's Statement talk about the distribution keys used to allocate the various cost pools in GO-11, in the context of how Guam shippers benefit from the economies of the common-cost production system used. However, it then goes on to say that a goal of regulation is:

to ensure that shippers are not being charged at rates that eat up their 'consumer surplus.' Being charged for consumer surplus is not the predominant experience in the U.S. economy, where, through competitive pricing, or through vigilant regulation, all U.S. consumers derive enormous consumer surplus from the scale, technological progress and competitive efficiencies in the economy. (Nadel, p. 19)

I am unable to see the relationship between this passage and standard principles of regulatory, or even introductory, economics. As noted in the previous section, consumer surplus is the excess of the value of a good or service over the amount a customer has to pay. In total, it is measured as the area under the demand curve and above the price charged.³³ The "marginal" customer pays exactly the value of the good to him- or herself, and other customers derive consumer surplus beyond the cost of the good.

First, nowhere in this description is anything that I can envision as being accurately characterized as "charging for consumer surplus." Moreover, the asserted goal of regulation -- "to ensure that shippers are not being charged at rates that eat up their consumer surplus" -- is at best very loosely stated, and at worst reflects a basic misunderstanding of the relevant principles. It is true that a goal of regulation is to prevent the regulated company from realizing monopoly profits. It is also true that restricting output in order to realize monopoly profits would capture some of the consumer surplus for the regulated company. But the regulatory goal of arranging regulation so the company expects to earn a competitive rather than a monopoly return on average, which can be done in several ways,³⁴ is not ordinarily stated in terms of consumer surplus.

³³ There actually are some subtleties as to the right measure of the demand curve for this purpose, but this is a second order consideration in the present context.

³⁴ Examples include rate-of-return regulation, price cap regulation, and actual competition for at least some services. (Just to prevent any confusion, the examples do *not* include FDC when scope economies exist.)

It is also true that consumer surplus is one of factors to be considered in assessing markups to recover unattributable costs, and it is the specific focus of regulatory use of Ramsey pricing. But if that is what Dr. Nadel's Statement intends to address and decry in this passage, the passage has the regulatory principles backwards. The principles of Ramsey pricing, which Dr. Nadel's Statement appears to reject, are intended precisely to *minimize* the loss in consumer surplus from the mark-ups over LRMC needed to recover the unattributable costs created by scope economies. If Dr. Nadel wishes to endorse regulatory principles that maximize consumer surplus, he should endorse Ramsey pricing.³⁵ An alternative standard, such as the maximum competitive contribution method (which, as discussed in Section II above, the ICC has effectively endorsed, and which I also have endorsed in the Guam trade context), results in a *greater* loss in total consumer surplus than pure, technically defined Ramsey pricing does. Yet this is the method that actually would minimize the markups over LRMC for Guam shippers.

B. WHETHER GO-11 IS WELL-ESTABLISHED FOR THE GUAM TRADE

As noted at the outset of this section of my testimony, at p. 5 Dr. Nadel's Statement states that "[t]he GO-11 has performed, and will continue to perform, ...extremely well" in the context of the Guam trade. At p. 6, it states that GO-11 provides "practiced, experienced tools" for cost allocation. GovGuam's Initial Submission at p. 12 goes so far as to say GO-11 is a "tried and true" method for the Guam trade. That page also says that the cost of "experimentation" with something other than GO-11 would be too high. These passages might be read to imply that the Board could treat GO-11 as an "off the shelf," time-tested approach in the context of the Guam trade. However, such a reading would badly distort reality.

First, I understand that even Docket 89-26 is still unresolved, despite the fact that a visit to the FMC's web site reveals that there have been over 500 filings or submissions of one sort or another since

³⁵ It is true that some of the consumer surplus saved through use of Ramsey pricing rather than the maximum competitive contribution method, in the context of the Guam trade, would be that of non-U.S. consumers, but that affects none of the principles involved.

the case began in 1989.³⁶ These circumstances would seem hard to characterize as having produced a “practiced, experienced tool” out of GO-11 in the Guam trade context, let alone as “trying” it and proving it “true.”

Even more telling is Dr. Nadel’s Statement itself, even before a Phase III involving GO-11 could be ordered by the Board. Pages 27-28, for example, spend part of his description of GO-11 detailing defects he believes it has in the context of the Guam trade. Pages 29-37, nearly one-quarter of the statement, are spent recommending changes to GO-11 to recognize special features he believes important in the Guam trade. This represents the tip of the iceberg, if GO-11 were adopted as a standard. For example, my own direct testimony in Docket 89-26 contained over 70 pages of text and well over 100 pages of exhibits, supported by many more pages of workpapers, solely on the topic of estimating GO-11 allocations that did not grossly violate economic reality for APL in 1988-1990. Many pages of rebuttal testimony and hearing transcript on this topic came afterwards.

The economic relevance of these circumstances in the present context is that whole new sets of such GO-11 analyses would be needed for the carriers in the present dispute, updated to the facts and circumstances for the period relevant to this dispute, with witnesses for GovGuam and the Carriers debating what modifications should be made to GO-11 to accommodate the special features that existed in the Guam trade for the particular carriers and time in question. Pages 27-37 of Dr. Nadel’s Statement are an extremely brief preview of that debate, should GO-11 be adopted by the Board.

Moreover, from an economist’s perspective, all of the Board’s standards under CMP ought still to be analyzed, too, since those are the standards that, unlike FDC, actually are in accord with the fundamental economic principles governing services provided with scope economies. To ignore those standards could give rise to all of the problems with FDC analyses that the economics literature, the ICC, and the Board have long recognized.

Thus, as an economist, I can only conclude that resources expended on a GO-11 standard in a Phase III hearing would be completely wasted from a societal viewpoint and could well lead to an outcome that harms both the Carriers and Guam.

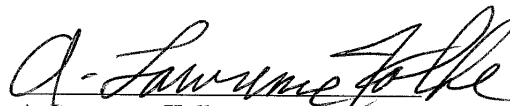
³⁶ See <http://www.fmc.gov/docket%20log/89%2D26log.htm>.

This concludes my Verified Statement.

VERIFICATION

I, A. Lawrence Kolbe, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Verified Statement.

Executed on June 14, 2002.


A. Lawrence Kolbe

Appendix A: QUALIFICATIONS OF A. LAWRENCE KOLBE

Lawrence Kolbe is a Principal of The Brattle Group ("Brattle"), an economic, environmental and management consulting firm with offices in Cambridge, Massachusetts, Washington, D.C. and London, England. Before co-founding The Brattle Group, he was a Director of Putnam, Hayes & Bartlett, and before that, he was a Vice President of Charles River Associates ("CRA"). Earlier, he was an Air Force officer assigned to the Office of the Secretary of Defense with the job title "Health Economist," and before that, he was assigned to Headquarters, USAF with the job title "Systems Analyst."

His work has included extensive research in financial economics, especially as it applies to rate regulation, project or asset valuation, and the decisions of regulated firms. Clients for this work include the California Public Utilities Commission, the Consumer Advocate in a Newfoundland proceeding, the Edison Electric Institute, the Electric Power Research Institute, the Interstate Natural Gas Association of America, the Newfoundland Federation of Municipalities, the Nova Scotia Board of Commissioners of Public Utilities, the Town of Labrador City, the U.S. Department of Energy, the U.S. Department of State, and a number of private firms.

He is the coauthor of two published books and a third still forthcoming, and he has published a number of articles. He is coauthor of a report filed with the British Office of Fair Trading, in London, and he has been an expert witness in: proceedings before the U.S.-U.K. Arbitration Concerning Heathrow Airport Landing Charges (under the auspices of the International Bureau of the Permanent Court of Arbitration) in The Hague, the Iran-United States Claims Tribunal in The Hague, U.S. District Courts in Arizona, Colorado, New Jersey, Oklahoma, Pennsylvania, Texas and Virginia, the Supreme Court of the State of New Mexico, a commercial arbitration tribunal in Australia, a commercial arbitration tribunal held in London concerning a dispute in Australia, the Minerals Management Service of the U.S. Department of the Interior, the Master Settlement Agreement Tobacco Arbitration Panels for the State of Louisiana and the Commonwealth of Massachusetts (which determine fee awards to private counsel assisting the state), and a commercial arbitration in Arizona; federal regulatory proceedings before the Canadian Radio-Television and Telecommunications Commission, the [Canadian] National Energy Board, the [U.S.] Postal Rate Commission, the U.S. Federal Communications Commission, the U.S. Federal Energy Regulatory Commission and the U.S. Federal Maritime Commission; and state or provincial regulatory proceedings in Alaska, Alberta, Arkansas, California, Connecticut, Illinois, Maine, Massachusetts, Michigan, Montana, Newfoundland, New Mexico, New York, Nova Scotia, Ohio and Virginia.

He holds a B.S. in International Affairs (Economics) from the U.S. Air Force Academy and a Ph.D. in Economics from the Massachusetts Institute of Technology. Additional information on his qualifications follows.

HONORS AND AWARDS

Sears Foundation National Merit Scholarship, 1963 (declined).

Fairchild Award, U.S. Air Force Academy, 1968 (for standing first in his class, academically).

National Science Foundation Graduate Fellowship in economics, MIT, 1968-1971.

Joint Service Commendation Medal, 1975.

PROFESSIONAL AFFILIATIONS

American Economic Association

American Finance Association

The Econometric Society

Served as Referee for *The Rand Journal of Economics*, *Land Economics*, *The Journal of Industrial Economics*

AVAILABLE PAPERS AND PUBLICATIONS

Capital Investment and Valuation, (with Richard A. Brealey and Stewart C. Myers, and currently expected to have "The Brattle Group" listed as third author), New York: Irwin/McGraw-Hill (forthcoming).

"The True Hourly Rate for Private Counsel in the State of Louisiana Tobacco Lawsuit," (with August J. Baker and Bin Zhou), Brattle report prepared for private counsel to the Louisiana Attorney General in the state's lawsuit to recover health care costs from the tobacco industry (July 2000).

"The Cost of Capital for the Dampier to Bunbury Natural Gas Pipeline," (with M. Alexis Maniatis and Boaz Moselle) Brattle report submitted to the Office of Gas Access Regulation, Western Australia (October 1999).

"Compensation for Asymmetric Risks," (with others) Brattle report prepared for GPU PowerNet, Melbourne, Australia (October 1999).

"A Non-Practitioner's Guide to the State of the Art in Cost of Capital Estimation," (with others) Brattle report prepared for GPU PowerNet, Melbourne, Australia (June 1999).

"A Note on the Pre-tax Weighted Average Cost of Capital in a Regulatory Context with Australian Dividend Tax Credits and Alternative Debt Refinancing Policies" (with M. Alexis Maniatis), Working Paper in Progress.

"The Impact of Stranded-Cost Risk on Required Rates of Return for Electric Utilities: Theory and An Example" (with Lynda S. Borucki). *Journal of Regulatory Economics* Vol. 13 (1998), 255-275.

"Taxing Mutual and Stock Insurance Companies" (with Stewart C. Myers), Working Paper in Progress.

"Current Taxation of Mutual Life Insurance Companies and the 'Graetz Theory'" (with Stewart C. Myers, Susan J. Guthrie and M. Alexis Maniatis), Working Paper in Progress.

"Compensation for the Risk of Stranded Costs" (with William B. Tye). *Energy Policy*, Vol. 24, No. 12 (1996), 1025-1050.

"Impact of Deregulation on Capital Costs: Case Studies of Telecommunications and Natural Gas," (with Lynda S. Borucki). Brattle report prepared for The Energy Association of New York State (January 1996, released July 1996).

"Response to Brown," (with William B. Tye and Stewart C. Myers). *Yale Journal on Regulation*, Vol. 13 (Winter 1996), 414-417.

"How to Value a Lost Opportunity: Defining and Measuring Damages from Market Foreclosure," (with William B. Tye and Stephen H. Kalos), *Research in Law and Economics* 17, 83-125 (1995).

"Faulty Analysis Underlies Claims of Excess Card Profits", (with Carlos Lapuerta). *American Banker*, October 10, 1995.

"It Ain't In There: The Cost of Capital Does Not Compensate for Stranded-Cost Risk," (with William B. Tye), *Public Utilities Fortnightly*, May 15, 1995.

"Purchased Power: Hidden Costs or Benefits?" (with Sarah Johnson, Johannes P. Pfeifenberger and David W. Weinstein). *The Electricity Journal* 7, 74-83 (September 1994).

The Utility Capital Budgeting Notebook (with others), EPRI TR-104369, Palo Alto, CA: Electric Power Research Institute, September 1994.

"Rate of Return Recommendations in Cable Television Cost-of-Service Regulation" (with Lynda S. Borucki). Brattle report filed in Federal Communications Commission Docket No. 93-215, CAPITAL STRUCTURE Docket No. 94-28, July 1994.

"Financial and Discount Rate Issues for Strategic Management of Environmental Costs" (with Stewart C. Myers). *Air and Waste Management Association*, Cincinnati, June 1994.

"Banking on NUG Reliability" (with Sarah Johnson and Johannes P. Pfeifenberger). *Public Utilities Fortnightly*, May 15, 1994.

"Section 712 Issues: Risk Identification, Allocation and Compensation." Paper presented to National Association of Regulatory Utility Commissioners (July 1993) and published in *Presentations and Papers from the National Seminars on Public Utility Commission Implementation of the Energy Policy Act of 1992*. Columbus, OH: National Regulatory Research Institute, December 1993.

"Purchased Power Risks and Rewards" (with Sarah Johnson and Johannes P. Pfeifenberger). Brattle report prepared for Edison Electric Institute, November 1993.

"Rate Base Issues in Cable Television Cost-of-Service Regulation" (with Susan E. Vitka). Brattle report filed in Federal Communications Commission Docket No. 93-215, August 1993.

"Rate of Return Issues in Cable Television Cost-of-Service Regulation" (with Lynda S. Borucki). Brattle report filed in Federal Communications Commission Docket No. 93-215, August 1993.

"The Failure of Competition in the Credit Card Market: Comment" (with Stephen H. Kalos, Carlos Lapuerta and Stewart C. Myers). Working paper in progress.

"Event Study of the Effects on Pacific Gas & Electric's Debt of the Guarantee of Pacific Gas Transmission's Debt" (with Lynda S. Borucki). Brattle report prepared for Pacific Gas & Electric Company, May 1993.

"It's Time for a Market-Based Approach to DSM" (with M. Alexis Maniatis, Johannes P. Pfeifenberger and David M. Weinstein). *The Electricity Journal* 6, 42-52 (May 1993).

Regulatory Risk: Economic Principles and Applications to Natural Gas Pipelines and Other Industries (with William B. Tye and Stewart C. Myers). Boston: Kluwer Academic Publishers (1993).

"EPA's 'BEN' Model: A Change for the Better?" (with Kenneth T. Wise and M. Alexis Maniatis), *Toxics Law Reporter* 7, 1125-1129 (February 24, 1993).

"Who Pays for Prudence Risk?" (with William B. Tye), *Public Utilities Fortnightly* (August 1, 1992)."

"Types of Risk that Utilities Face," Brattle report prepared for Niagara Mohawk Power Corporation, May 7, 1992.

"EPA's 'BEN' Model: Challenging Excessive Penalty Calculations" (with Kenneth T. Wise, Paul R. Ammann and Scott M. DuBoff), *Toxics Law Reporter* 6, 1492-1496 (May 6, 1992).

"Optimal Time Structures for Rates in Regulated Industries" (with William B. Tye). *Transportation Practitioners Journal* 59, 176-199 (Winter 1992).

"Environmental Cleanup Liabilities" (with William B. Tye), *Public Utilities Fortnightly* (January 1, 1992).

"The Fair Allowed Rate of Return with Regulatory Risk" (with William B. Tye), *Research in Law and Economics* 15, 129-169 (1992).

"Risk of the Interstate Natural Gas Pipeline Industry" (with Stewart C. Myers and William B. Tye), Washington, DC: Interstate Natural Gas Association of America (October 1991).

"The *Duquesne* Opinion: How Much 'Hope' Is There for Investors in Regulated Firms?" (with William B. Tye). *Yale Journal on Regulation*, Winter 1991.

"How Far Back Should Prudence Tests Reach?" (with William W. Hogan). *Public Utilities Fortnightly* (January 15, 1991).

"Practical Implications of the Supreme Court's *Duquesne* Opinion for Regulated Industries" (with William B. Tye). *Public Utilities Fortnightly* (August 30, 1990).

"Evaluating Demand-Side Options" (with Matthew P. O'Loughlin and Stephen W. Chapel) Palo Alto, CA: Electric Power Research Institute.

"Financial Constraints and Electric Utility Capital Requirements," (with Matthew P. O'Loughlin) *Proceedings of the 1989 EPRI Utility Strategic Issues Forum*. Palo Alto, CA: Electric Power Research Institute.

"When Choosing R&D Projects, Go with the Long Shot" (with Peter A. Morris and Elizabeth Olmstead Teisberg). *Research Technology Management* (January-February 1991).

"EPRI PRISM Interim Report: Parcel/Message Delivery Services" (with Richard W. Hodges), PHB report prepared for the Electric Power Research Institute, RP-2801-2 (June 1989), reprinted in S. Oren and S. Smith, eds., *Service Opportunities for Electric Utilities: Creating Differentiated Products*. Boston: Kluwer Academic Publishers (1993).

"Capital Requirements for the U.S. Investor-Owned Electric Utility Industry, 1985-2005" EPRI P-5830. (PHB report with Sarah K. Johnson and Matthew P. O'Loughlin). Palo Alto, CA: Electric Power Research Institute (June 1988).

"Are Regulatory Risks Excessive? A Test of the Modern Balance between Risk and Reward for Electric Utility Shareholders" (PHB report with Matthew P. O'Loughlin). Division of Coal and Electric Policy, U.S. Department of Energy (May 1986).

"Cash Flow Risk, the Cost of Capital, and the Fair Allowed Rate of Return." Working paper in progress.

"Determining the Cost of Capital for Utility Investments" (with Robert A. Lincoln and James A. Read, Jr.). In *Energy Markets in the Longer-Term: Planning under Uncertainty*. A.S. Kydes and D.M. Geraghty, ed. North-Holland: Elsevier Science Publishers, 1985.

"How Can Regulated Rates — and Companies — Survive Competition?" *Public Utilities Fortnightly* 115 (4 April 1985).

"Inflation and Rate of Return Regulation" (with Stewart C. Myers and William B. Tye). In *Research in Transportation Economics*, Volume II. Greenwich, CT: JAI Press, Inc., 1985.

"Annual Capital Charges That Will Survive Competition." Prepared for the 11th Annual Rate Symposium, The Institute for Study of Regulation. February 1985.

The Cost of Capital: Estimating the Rate of Return for Public Utilities (with James A. Read and George R. Hall). Cambridge, MA: The MIT Press, 1984.

"Conditions for Investor and Customer Indifference to Transitions Among Regulatory Treatments of Deferred Income Taxes" (with William B. Tye and Miriam Alexander Baker). *The Rand* (formerly *Bell Journal of Economics*) (Fall 1984).

"The Cost of Capital and Investment Strategy" (with Robert A. Lincoln). *Management Review* (May 1984).

"Regulation and Capital Formation in the Oil Pipeline Industry" (with Stewart C. Myers and William B. Tye). *Transportation Journal* (Spring 1984).

"Regulatory Treatment of Deferred Income Taxes Resulting from Accelerated Depreciation by Motor Carriers" (with William B. Tye and Miriam Alexander Baker). *Transportation Journal* (Spring 1984).

"The Economics of Midstream Switches in Regulatory Treatments of Deferred Income Taxes Resulting from Accelerated Depreciation" (with William B. Tye and Miriam Alexander Baker). *ICC Practitioners' Journal* (November-December 1983).

"Selection of Discount Rates for Project Evaluations." Prepared for the 27th AACE Meeting. June 1983.

"What Rate of Return Makes Your Energy Investment Worthwhile?" (with Robert A. Lincoln). *Power* (April 1983).

"Inflation-Driven Rate Shocks: The Problem and Possible Solutions." *Public Utilities Fortnightly* 111 (17 February 1983).

"Inflation and Utility Finances: Problems and Possible Solutions." Presented at the NARUC Biennial Regulatory Information Conference. September 1982.

"A Model of Capital Market Interactions with Utility Strategic Decisionmaking." Presented at the IMACS World Conference on Systems Simulation and Scientific Computation. August 1982.

"Marginal Cost Pricing with Inflation" (with William R. Hughes). Delivered to the IAEE Conference on International Energy Issues. June 1981.

"The Economics of Revenue Need Standards in Motor Carrier General Increase Proceedings" (with William B. Tye and Miriam Alexander Baker). *Transportation Journal* (Summer 1981).

"Flow-Through Versus Normalization of Deferred Income Taxes for Motor Carriers" (with William B. Tye and Miriam Alexander Baker). *Motor Freight Controller* (December 1980).

CRA Reports (Often Written with Others)

"Evaluating the Effects of Time and Risk on Investment Choices: A Comparison of Finance Theory and Decision Analysis" (with Applied Decision Analysis, Inc.). Published by the Electric Power Research Institute. January 1987.

"The 'Abandonment Value' of Shorter Leadtimes" (with Applied Decision Analysis, Inc.). June 1985.

"Rate Shock and Power Plant Phase-In: Discussion Paper of Generic Issues." Published by the Edison Electric Institute. December 1984.

"Choice of Discount Rates for Utility Planning: A Critique of Conventional Betas as Risk Indicators for Electric Utilities." Published by the Electric Power Research Institute. February 1984.

"Choice of Discount Rates in Utility Planning: An Attempt to Estimate a Multi-Factor Model of the Cost of Equity Capital." December 1983.

"Southern California Edison Company Study of Conservation Potential and Goals." December 1983.

"Economic Costing Principles for Telecommunications." September 1983.

"Analysis of Risky Investments for Utilities." Published by the Electric Power Research Institute. September 1983.

"A Conceptual Model of Discount Rates for Utility Planning." July 1982.

"The Electric Utility Industry's Financial Condition: An Update." Published by the Electric Power Research Institute. June 1982.

"Choice of Discount Rates in Utility Planning: Principles and Pitfalls." Published by the Electric Power Research Institute. June 1982.

"Analysis of the Federal Residential Energy Tax Credits." April 1982.

"Methods Used to Estimate the Cost of Equity Capital in Public Utility Rate Cases: A Guide to Theory and Practice." March 1982.

"An Analysis of the Interaction of the Coal and Transportation Industries in 1990." September 1981.

"An Analysis of the Residential Energy Conservation Tax Credits: Concepts and Numerical Estimates." June 1981.

Appendix B: CITATIONS FROM THE ECONOMICS LITERATURE AND ICC/BOARD DECISIONS ON THE PROBLEMS WITH FULLY DISTRIBUTED COST PRICING

Numerous economists have identified the problems with fully distributed cost ("FDC") pricing. This appendix cites authorities in regulatory economics and decisions by the Interstate Commerce Commission ("ICC") and the Surface Transportation Board ("Board") supporting my discussion in Section II of my Verified Statement. A summary of the most pervasive criticisms is enumerated best by Braeutigam:

- (1) Fully distributed costs bear no direct relationship to marginal costs; hence, there is no basis in economic efficiency for FDC pricing.
- (2) There exists no uniquely acceptable allocation rule. As Friedlaender (1969, pg. 133) notes, "Various means of prorating the common or joint costs can be used, but all of them have an arbitrary element and hence are dangerous to use in prescribing rates."
- (3) On grounds of economic efficiency, it may sometimes be desirable to set a price for some service so that the revenues generated by a service do not cover its fully distributed costs.
- (4) Because the determination of fully distributed costs is somewhat arbitrary, there is no economic basis for concluding that a service is being subsidized by other services if its revenues are less than its fully distributed costs.
- (5) FDC pricing is anticompetitive since it prevents a supplier from offering a service at a proposed tariff less than an FDC price, particularly if the proposed tariff exceeds the marginal cost of providing the service.
- (6) There is circular reasoning behind the FDC practice. Tariffs which are determined to be "appropriate" at a given time may depend on the existing levels of output or

revenues, and these, in turn, depend on previous tariffs. Thus, fully distributed costs may depend on the acceptance of a prior tariff structure. [Footnotes omitted.]

Braeutigam, R.R., "An Analysis of Fully Distributed Cost Pricing in Regulated Industries," *Bell Journal of Economics*, 11, (1980), p. 184-185.

Brown and Sibley echo most of these same problems in their summary of criticisms of FDC pricing.

Economists' criticisms of FDC have been scathing. They particularly single out the fact that different FDC allocation methods are essentially arbitrary, yet can lead to widely different results. Second, there is no effort in FDC pricing to increase economic efficiency; the important cost concept is not marginal cost, but an "average cost" with no clear rationale. Also, price elasticities of demand have no place in setting FDC rates, except perhaps in forecasting revenue, so FDC prices will generally be much different from Ramsey prices. Finally, economists have argued that FDC methods are utterly meaningless in one of their main uses, testing for cross subsidy.

Brown, S. and D. Sibley, *The Theory of Public Utility Pricing*, Cambridge University Press, (1986), p. 49.

Spulber adds the following to these criticisms.

It may be difficult for regulators to distinguish between joint and attributable costs, thus worsening pricing distortions associated with fully distributed cost pricing and other administrative pricing rules.

Spulber, D., *Regulation and Markets*, MIT Press, (1989), p. 134.

Other authorities tend to focus on subsets of these problems. These cites from the economic literature are categorized below.

A. ARBITRARINESS

The most ubiquitous criticism of FDC pricing is its arbitrariness. By definition, joint costs cannot unambiguously be attributed to any single product or service. As Braeutigam (1980) adds, "...so that any rule selected to associate shared costs with individual services will be arbitrary."³⁷ In fact, Baumol, Koehn and Willig devote an entire article to this subject. The purpose of their paper and opinions are summarized as:

This article briefly reviews the burdens upon consumers and the public generally that are likely to result. However, its major purpose is to puncture the legend that a fully allocated cost calculation produces numbers approximating any substantive economic magnitudes. We will show that different and equally plausible allocation criteria yield shockingly different numerical results, so that by judicious choice of allocation criterion, the partisan calculator can make the process yield virtually any numbers he chooses (in advance) to obtain.

Because of the arbitrariness of such a process [full cost allocation] and the extreme volatility of its results when the basis of allocation is changed, one can be confident that it will lead to a profusion of protracted disputes over the figures and the shares of the joint and common costs that are to be recovered from different groups of ratepaying customers of the firm.

We will only note that because the numbers that emerge from the process are indeed arbitrary, any prices determined by the regulator with their aid can only have a random relation to the prices that would emerge in competitive markets; *i.e.*, the prices required if economic efficiency is not to be undermined.

The implications of the preceding data are clear. Fully allocated cost figures and the corresponding rate of return numbers simply have zero economic content. They cannot pretend to constitute approximations to *anything*. The "reasonableness" of the basis of allocation selected makes absolutely no difference except to the success of the advocates of the figures in deluding others (and perhaps themselves) about the defensibility of the numbers. There just can be no excuse for continued use of such an essentially random or,

³⁷ Braeutigam, R.R., "An Analysis of Fully Distributed Cost Pricing in Regulated Industries," *Bell Journal of Economics*, 11, (1980), p. 182.

rather, fully manipulable calculation process as a basis for vital economic decisions by regulators. [Emphasis in the original.]

Baumol, W., M. Koehn, and R. Willig, "How Arbitrary is 'Arbitrary'? -- or, Toward the Deserved Demise of Full Cost Allocation", *Public Utilities Fortnightly*, September 3, 1987, pp. 16, 17 and 21.

Other authorities seem to agree.

In principle, of course, there are an infinite number of ways one can allocate the common costs . . .

In general the concept of average cost will not be well defined for a multiproduct technology; if there are shared costs of production, in the sense defined in Section 4, then there is no unambiguous way to allocate the common costs. Thus, there is no clear way to determine an economically meaningful measure of the average cost associated with each service.

Braeutigam, R., "Optimal Policies for Natural Monopolies", *Handbook of Industrial Organization, Volume II*, Elsevier Science Publishers B.V. (1989), pp. 1313 and 1321.

Commissions have already dealt with the realization that large numbers of allocation rules can be employed in FDC pricing. Consider the example favored by James Bonbright.

Thus, in 1953 and again in 1957, when the Commonwealth Edison Company of Chicago filed an application for a general rate increase, the Illinois Commerce Commission declined to order such an apportionment despite the request of intervenors that the Company be required to submit one. In partial support of its refusal, the Commission referred to an exhibit, introduced by one of the Company officials, disclosing the existence of twenty-nine rival formulas for the allocation of capacity costs alone -- formulas each of which had received some professional sponsorship.

Bonbright, J., "Public Utilities and Transportation Fully Distributed Costs in Utility Rate Making", *American Economic Review*, Vol. 51, No. 2 (May 1961b), pp. 306-307.

The arbitrariness of the FDC method was also voiced by the ICC and the Board. In the coal rate proceeding, the ICC in 1980 first

... proposed a maximum rate formula designed to permit a carrier to charge the 'fully allocated cost' of this traffic, including the cost of capital.^{5/} Under the formula proposed (known as the "ton/ton-mile method"), the carrier's constant costs would be assigned to particular traffic based upon the tonnage and ton-miles involved. [Footnote 6 omitted.]

^{5/} ... The 'fully allocated cost' of a movement, which we would permit a carrier to charge, was equal to the variable costs of the movement plus a markup to permit recovery of an assigned portion of the constant costs. The markup was traditionally based on an arbitrary formula. ...

Coal Rate Guidelines, Nationwide, 1 I.C.C.2d 520 (Ex Parte No. 347 Sub No. 1), dated August 8, 1985, pp. 3 - 4

In 1981, however, the ICC

... rejected the ton/ton-mile method as a formula for determining maximum reasonable rates. The comments we had received from all parties convinced us that the rates derived from this method would not reflect demand nor necessarily contribute to achieving revenue adequacy. Indeed, we concluded that a meaningful maximum rate policy could not be founded on a strictly cost-based approach. Because competition compels the railroads to price some of their services below an arbitrarily assigned "cost", they must be able to price other services above their assigned "cost" in order to compensate. Otherwise, the carriers may never be able to cover all their costs and earn adequate revenues. Therefore, we expressed our commitment to the concept of demand-based differential pricing, whereby the carrier may price its services according to the varying demand elasticities for them. [Footnotes omitted.]

Ibid., p.4-5

The 1985 decision itself further explains that:

Any means of allocating these costs among shippers other than actual market demand is arbitrary and may not permit a carrier to cover all of its costs. This is because non-demand-based cost apportionment methods do not necessarily reflect the carrier's ability (or inability) to impose the assigned allocations and cover its costs. Thus, they frequently "over-assign" or "under-assign" the carrier's unattributable costs to particular services. If a carrier sought to apply the formula price to all of its traffic, it would lose that traffic for which the demand could not support the price assigned. In that event, the remaining shippers might be required to pay a larger portion of the carrier's unattributable costs because they would lose the benefit of sharing these costs with the lost traffic.

Ibid., p.8

In its 1985 decision on coal rates, the ICC ordered that

The Commission will be guided in individual coal rate reasonableness determinations by the principles of Constrained Market Pricing set forth in this decision.

Ibid., p. 34.

As explained by ICC, the constrained market pricing reflect the economic principles of differential pricing and contestability of markets. [*Ibid.*, p. 7.]

The Board, the successor to the ICC, fully endorsed the ICC decision in its decision on non-coal rate guidelines:

Because railroads serve a mix of competitive and captive traffic, a carrier cannot recover an equal or pro rata portion of those unattributable costs from all traffic. Accordingly, the ICC adopted Ramsey pricing principles as the cornerstone of its rate reasonableness tenets for the railroad industry.

* * *

We [the Board] must be guided by Ramsey pricing principles and fundamental fairness in carrying out this regulatory task. ... Our challenge is to reflect these economic and equitable principles, as best as we can, in a practical, readily administrable test.

Rate Guidelines - Non-Coal Proceedings, Surface
Transportation Board Decision Ex Parte No. 347 (Sub-
No. 2), dated December 27, 1996, pp. 3, 4.

B. NO RELATION TO MARGINAL COST

Alfred Kahn is clearly concerned with the first point in Braeutigam's list, the lack of relationship between FDC prices and marginal costs.

Quite simply, the basic defect of fully distributed costs as a basis for rate making is that they do not necessarily measure marginal cost responsibility in a causal sense. They do not measure by what amount costs would be increased if additional quantities of any particular service were taken, or by what amount costs would be reduced if the service were correspondingly curtailed.

A particularly clear example of the lack of correspondence between average, fully distributed and marginal costs and of the irrationality of basing rates on the former is provided by the . . .

The basic defect of full cost distributions as the basis for pricing is, then, that they ignore the pervasive discrepancies between marginal and average cost. And, as this chapter has demonstrated, those discrepancies may require prices that take into account not just the costs but also the elasticities of demand of the various categories of service if the company is to recover its total costs. Whenever there is some separable portion of the demand sufficiently elastic that a rate below fully-distributed costs for it would add more to total revenue than to total costs, any insistence that each service or group of patrons pay their fully allocated costs would be self-defeating. It would force the firm to charge a price that would result in its turning away business that would have covered its marginal costs -- in other words, would prevent it from obtaining from customers with an elastic demand the maximum possible contribution to overheads. Thus, under the guise of ensuring a fair distribution of common costs and preventing undue discrimination, it would be serving the interests neither of the patrons who would be prepared to take additional quantities if prices were closer to marginal costs, nor of the customers with the more inelastic demands. [Footnote omitted.]

Kahn, A., *The Economics of Regulation: Principles and Institutions, Volume I: Economic Principles*, John Wiley & Sons, Inc., pp. 151, 153, 155.

A more recent textbook on the economics of regulation recapitulates Kahn's concern:

There is a serious problem implicit in this procedure [FDC], however, because a large proportion of a firm's costs are usually common costs. For example, high-voltage power lines are used in common by all customer groups. And although arbitrary accounting rules can be made up to apportion these costs among groups (for instance, in proportion to their respective annual purchases of the product), none are meaningful in an economic sense as a basis for setting prices.

* * *

The particular [FDC] method may appear quite reasonable, but the essential point is that it is necessarily arbitrary. And more importantly, such cost allocations lead to prices that have no necessary relationship to marginal costs.

Viscusi, W. K., J. M. Vernon, and J. E. Harrington, Jr., *Economics of Regulation and Antitrust*, (1997), Second Edition, The MIT Press, pp. 371, 392.

C. ECONOMICALLY INEFFICIENT

Points (3) and (5) on Braeutigam's list address the economic inefficiency that results from FDC prices that don't reflect the demand for services. As discussed above, the ICC recognized this shortcoming of FDC prices in assessing reasonable rail rates for coal. Braeutigam elaborates further on the economic inefficiency of FDC prices in the following cites.

FDC pricing will lead to prices which are in general economically inefficient, which is not surprising given the fact that the practice focuses heavily on cost and little on conditions of demand (including demand elasticities) which are important in determining the size of the deadweight losses from any pricing policy.

Although an allocation that is entirely cost-based [fully distributed cost pricing] may be desirable from an accounting perspective, it is not useful in the determination of efficient prices.

Braeutigam, R., "Optimal Policies for Natural Monopolies", *Handbook of Industrial Organization, Volume II*, Elsevier Science Publishers B.V. (1989), pp. 1314 and 1327.

Zajac (1972) has shown that it may not be possible to reach a Ramsey optimum with an FDC pricing rule . . . Thus, it is not surprising that under some circumstances all of the three FDC rules we have addressed will lead to economically inefficient pricing.

Braeutigam, R.R., "An Analysis of Fully Distributed Cost Pricing in Regulated Industries," *Bell Journal of Economics*, 11, (1980), p. 189.

A similar point is also emphasized by Laffont and Tirole, two leading economists on industrial organization and regulation, in a context more general than rate regulation alone:

Allocating aggregate cost among projects or product lines is generally considered difficult. On the one hand, several costs (facilities, machines, management, accounting, marketing, etc.) may be common to several activities. The firm can manipulate accounting procedures to reallocate costs to its advantage. On the other hand, the managers can also assign their best engineers to or exert their supervisory or cost-reducing effort in those activities with a smaller fraction of reimbursed cost. The "fully distributed cost schemes" used in some industries represent an attempt to allocate aggregate cost among activities. Their basic

defect is that they use mechanical rules to determine the distribution of joint costs (e.g., allocation of joint costs proportionally to outputs). Such schemes are orthogonal to the efficiency concern of charging prices that reflect marginal costs; furthermore they introduce perverse incentives in the pattern of cost reduction.

Jean-Jacques Laffont, and Jean Tirole, 1994, *A Theory of Incentives in Procurement and Regulation*, The MIT Press, Cambridge, MA and London, England, p.7

D. CIRCULARITY

Circularity results because FDC allocation rules employ historical data, e.g., revenue, costs or output, which are functions of the rates previously set. The cites below best describe this problem.

Also, being apportionments of historical costs, even when they do accurately reflect historical responsibility for the incurrence of these costs among the respective users, they do not provide a reliable measure of what will happen to costs in the future if particular portions of the business are expanded or dropped. Therefore, they do not tell whether a particular service is really profitable or unprofitable, in the sense that its continued provision at existing rates makes a net contribution to company revenues over and above the costs for which it is responsible, or whether, instead, it is a burden on the other subscribers.

Kahn, A., *The Economics of Regulation: Principles and Institutions, Volume I: Economic Principles*, John Wiley & Sons, Inc., p. 152.

It may involve circular reasoning since prices, revenues or output levels are used to determine the allocators which are used in turn to set prices.

Braeutigam, R., "Optimal Policies for Natural Monopolies", *Handbook of Industrial Organization, Volume II*, Elsevier Science Publishers B.V. (1989), p. 1314.

E. CROSS-SUBSIDIZATION

The cross-subsidization criticism described in Braeutigam's list, point (4), is elaborated on by several regulatory economic authorities.

... the reason no FDC test will do the job is because an FDC test deals with only one circumstance, that is, it deals with the service as it is operated or has been operated. It involves no incremental comparison. It does not compare the circumstances of the user with the service and in the absence of the service.

Baumol, William J., Docket 18128/18684, Transcript at 10386.

This discussion confirms a central contention of economists: that FDC prices are not tests for cross subsidy. Since any FDC method is subsidy free, no single one can be used as a test for cross subsidy.

Brown, S. and D. Sibley, *The Theory of Public Utility Pricing*, Cambridge University Press, (1986), p. 54.

[I]t is therefore impossible to allocate these [common] costs in an unambiguous fashion among the services of the firm. Since tests for cross subsidy typically relate revenues for a service (or a group of services) to the costs of providing that service, attempts to base tests of subsidy on fully distributed costing methods are themselves fraught with ambiguity.

Braeutigam, R., "Optimal Policies for Natural Monopolies", *Handbook of Industrial Organization, Volume II*, Elsevier Science Publishers B.V. (1989), p. 1338.

Appendix C: NUMERICAL EXAMPLE OF THE ECONOMICS OF COMMON-COST PRODUCTION

Section II of my testimony describes why fully distributed cost ("FDC") methods such as GO-11 are economically meaningless and likely to be highly misleading for the Guam trade. This appendix provides a simplified, extended numerical example to demonstrate the reasons that common-cost production makes an FDC approach so troubling for a service like that to Guam. The example subsequently is used to illustrate the tests that economics says *can* be made of rates in such case.

The numbers in the example are not intended to be representative of any particular situation or of realistic relative magnitudes, but instead are chosen solely to illustrate certain points of principle that must be followed in any economically reasonable analysis of actual costs. Moreover, the actual complexity of the Carriers' systems is vastly beyond that illustrated in this example.

A. EXAMPLE OF COMMON-COST PRODUCTION

The example assumes three markets and that an ocean shipping company can provide three services to those markets: turn-around transportation between Ports A and B, turn-around transportation between A and C, or transportation between A and B and between A and C combined.³⁸ The shipping services are provided with a combination of vessel costs (return on capital, depreciation, taxes, etc.), voyage costs (fuel, crew time, etc.), administrative and general expenses (headquarters, computers, etc.), port costs (pilot costs, etc.), and cargo handling and container costs (cranes, stevedores, etc.). Note that vessel and port costs include maintenance, depreciation, taxes, *and a reasonable return to investors* on the capital employed. The example's expected cost tradeoffs for the various service combinations are shown in Table C-1:

³⁸ That is, for simplicity, the example assumes there is no traffic at all between Ports B and C. Thus, the joint service just provides the first two services using common equipment.

TABLE C-1 EXAMPLE OF COSTS WITH SCOPE ECONOMIES (IN THOUSANDS EXCEPT FOR AVERAGES)			
	<i>Ports A & B</i>	<i>Ports A & C</i>	<i>Ports A, B, & C</i>
Total Carriage			
Ports A & B	10	N/A	10
Ports A & C	N/A	10	10
Common Costs			
Voyage/Vessel Expense	\$8,000	\$10,000	\$16,250
Administrative & General	5,500	4,500	9,500
Port A: Port & Cargo Handling	N/A	N/A	6,750
<i>Total Common</i>	\$13,500	\$14,500	\$32,500
Direct Costs			
Port A: Port & Cargo Handling	\$4,750	\$4,000	N/A
Port B: Port & Cargo Handling	4,500	N/A	\$4,500
Port C: Port & Cargo Handling	N/A	3,750	3,750
<i>Total Direct</i>	\$9,250	\$7,750	\$8,250
Total Cost Measures			
Ports A & B	\$22,750	N/A	Undefined
Ports A & C	N/A	\$22,250	Undefined
Ports A, B & C	N/A	N/A	\$40,750
Average Cost Measures			
Ports A & B	\$2,275.0	N/A	Undefined
Ports A & C	N/A	\$2,225.0	Undefined
Ports A, B & C	N/A	N/A	Undefined

The columns of the table show three situations: carriage of 10,000 containers round-trip (*i.e.*, 5,000 each way) between Ports A and B, carriage of 10,000 containers round-trip between Ports A and C, and carriage of 10,000 containers between A and B and another 10,000 between A and C by a combined service.³⁹ Costs are broadly grouped into two categories, common and direct. The costs reflect several

³⁹ The 10,000 container level was chosen to keep calculation of averages simple. If it would help to clarify (continued...)

relationships that are assumed to hold for purposes of the example:

- ! Port C is further from Port A than Port B is, and Port B is closer to Port C than to Port A.
- ! Containers shipped between Ports A and B are intrinsically more expensive to handle, transport, and administer than those shipped between Ports A and C (*e.g.*, they may contain a much higher proportion of flatracks, platforms, and refrigerated containers).
- ! The port and cargo handling costs at Port A are more expensive than those at Port B, which in turn are more expensive than those at Port C. (Note also that Port A costs shift from “direct” to “common” when it provides service to both other ports.)
- ! Larger vessels in these services have lower costs per container-day than do smaller vessels (*i.e.*, these vessels display *scale* economies in the relevant range of operation).
- ! Administrative and general expenses (A&G) and cargo handling costs in these services also display scale economies in the relevant range of operation.
- ! Cargo handling costs per unit go down for these services when a port trades with more than one other port (*i.e.*, cargo handling costs display *scope* economies in the relevant range of operation).

The result of these factors is that the total cost of the third, combined option is less than the sum of the costs of the other two options. That is, scope economies exist for these two service combinations, because it is cheaper to provide combined service to the three markets than to use a pair of turn-around services.

The import of the table comes when one tries to calculate various measures of total and average cost under such conditions. The overall total cost is defined in all cases: \$22.75 million for a turn-around service between Ports A and B, \$22.25 million for a similar service between A and C, and \$40.75 million for a

(...continued)

the example to give the traffic level an economic interpretation, note that the table explicitly does *not* have a time dimension. Thus, these may be 10,000 containers per week, per month, or per year. The idea would simply be that this average level of traffic can be expected on a recurring basis, and that it makes economic sense to plan for whatever period of time underlies the 10,000 container level of traffic.

combined service. However, with the combined service, it is not possible to define “the” total cost of either the A-B or the A-C services alone, because there is no unique way to allocate the common costs to either product. (I return to this point below, after introducing some additional definitions.) Moreover, average cost cannot be defined even in total, because the services provided to the two port combinations are different products.

That is, it might be thought that an FEU is an FEU, or an FEU-mile is an FEU-mile, and thus that the average cost of the combined service is perfectly well defined. However, as the differing cargo/container costs in this example make clear, this is not true in general. Thus, a plant that makes Fords and Chevrolets might be thought to have a meaningful average cost per “car,” but this average would be considerably harder to understand if the plant made Yugos and Rolls Royces. What would the average cost per “Yugo/Rolls Royce” mean? The more the goods or services differ, the less meaningful is the overall average cost.

In sum, total and average cost by product are undefined with scope economies, and overall average cost is undefined unless the products are identical.

B. MEANINGFUL COST CONCEPTS WITH COMMON-COST PRODUCTION

While total and average cost by product are undefined with scope economies, two cost concepts are meaningful: *stand-alone cost* and *incremental cost*. The stand-alone cost is the cost of producing a good or service by itself, without taking advantage of the scope economies. The incremental cost is the cost of adding production of another good or service if a company produces the other product as well. Table C-2 shows these values for the example introduced in Table C-1.

TABLE C-2 STAND-ALONE AND INCREMENTAL COSTS WITH SCOPE ECONOMIES EXAMPLE (THOUSANDS)	
	<i>Total Cost</i>
Incremental Cost of Port C, given Service for A & B	
Cost of Serving A, B & C	\$40,750
Stand-Alone Cost of A & B	22,750
<i>Incremental Cost of C</i>	\$18,000
Incremental Cost of Port B, given Service for A & C	
Cost of Serving A, B & C	\$40,750
Stand-Alone Cost of A & C	22,250
<i>Incremental Cost of B</i>	\$18,500
Sum of Stand-Alone Costs	\$45,000
Sum of Incremental Costs	36,500
Cost of Serving A, B & C	40,750

The calculation is straightforward: incremental cost equals combined cost minus stand-alone cost.⁴⁰ Thus, the incremental cost of adding the Port A-Port C traffic is the combined A-B-C cost of \$40.75 million minus the stand-alone A-B cost of \$22.75 million, or \$18 million. Symmetrically, the incremental cost of adding the A-B service given the A-C service is the combined cost of \$40.75 million minus the stand-alone A-C cost of \$22.25 million, or \$18.5 million.

C. MEANINGLESS COST CONCEPTS WITH COMMON-COST PRODUCTION

The preceding discussion has stated repeatedly that total and average cost cannot be defined for the separate products with common-cost production. It is time to illustrate why this is true. One of the problems with average cost calculations with common-cost production was already demonstrated in Table C-1, where the problem of finding a meaning for the average cost per "Yugo/Rolls Royce" (or

⁴⁰ Note that incremental cost can be calculated for whatever size of incremental production is relevant to the issue being analyzed; the concept itself is not intrinsically restricted to the "all-or-nothing" increment that is relevant for this example (and for determination of the cost of serving Guam versus some other market).

apples/oranges, to use a more common illustration) was raised. Table C-3 goes beyond this issue, to illustrate the impossibility of identifying the total cost of either product alone.

TABLE C-3 TOTAL COST CONCEPTS WITH THREE-PORT SERVICE WITH SCOPE ECONOMIES EXAMPLE (IN THOUSANDS)			
	Ports A & B	Ports A & C	Ports A, B & C
Reference Costs:			
Stand-Alone Cost	\$22,750	\$22,250	N/A
Incremental Cost (<i>i.e.</i> , given that other service is provided)	18,500	18,000	N/A
Total Cost Concepts by Service [Many equally (in)valid answers]:	?	?	\$40,750
1. Allocate common costs based on traffic levels	\$20,750	\$20,000	40,750
2. Allocate common costs based on direct costs	22,227	18,523	40,750
3. Assume A-B is base service; A-C service is incremental	22,750	18,000	40,750
4. Assume A-C is base service; A-B service is incremental	18,500	22,250	40,750

The table shows various possible definitions of the total cost of the A-B and A-C services in the case where all three ports are being served. (For ease of reference, it first replicates the stand-alone and incremental costs from Table C-2.) To illustrate the problem, the table arbitrarily selects four possible ways to allocate the common costs between the two products: (1) based on output, *i.e.*, the number of units carried (10,000 each), which splits the common costs equally; (2) based on the relative direct costs, which allocates 55 percent of the common costs to the A-B service and 45 percent to the A-C service; and (3) and (4) based on the assumption that each service in turn is "primary", so it gets all of the common costs. Of course, these are only four examples. There are an infinite number of ways the common costs might be allocated, none necessarily any more or less valid than any of the others, and none of them a meaningful way to measure "the" total cost of the service in question. The total cost of each service by itself *cannot* be defined.

The same is true for the average cost of each service, as illustrated in Table C-4.

TABLE C-4 AVERAGE COST CONCEPTS WITH THREE-PORT SERVICE WITH SCOPE ECONOMIES EXAMPLE			
	Ports A & B	Ports A & C	Ports A, B & C
Reference Costs:			
Stand-Alone Cost	\$2,275	\$2,225	N/A
Incremental Cost (<i>i.e.</i> , given that other service is provided)	1,850	1,800	N/A
Average Cost Concepts by Service [Many equally (in)valid answers]:	?	?	?
1. Allocate common costs based on traffic levels	\$2,075	\$2,000	?
2. Allocate common costs based on direct costs	2,223	1,852	?
3. Assume A-B is base service; A-C service is incremental	2,275	1,800	?
4. Assume A-C is base service; A-B service is incremental	1,850	2,225	?
Range of Cost Allocations:			
High minus Low	\$425	\$425	N/A
Range as percentage of Stand-Alone Cost	19%	19%	N/A
Range as percentage of Incremental Cost	23%	24%	N/A

Table C-4 simply divides the various cost measures in Table C-3 by the number of units carried. Since there are 10 thousand containers each for both the A-B and A-C services, this just moves the decimal place one space to the left. The table thus confirms that the average cost of each service is no better defined than the total cost. It also reinforces the point that unless the services are identical, which is not true here because of the hypothesized cargo handling and voyage cost difference, overall average cost is not defined, either.

The table brings the discussion to the fundamental question that Guam's complaint raises in this proceeding. Suppose it turned out that the company charged \$2,250 per container for the A-B service and \$1,825 for the A-C service. On what *cost*-based allocation could one assert that either of those prices was not "fair and reasonable"? Both prices exceed the incremental cost of service, so the company is not losing money

by providing either service, given the other one. More relevant given Guam's complaint in this case, both prices fall short of the stand-alone cost of service, so customers in both markets are better off than they would be if they had to provide the service themselves. The prices specified are below some of the measures of average cost and above others, but that should *always* be true (unless the price happens to equal either the stand-alone or incremental cost exactly), because there will always be many different definitions of average cost, none necessarily any more meaningful than any other.

However, there is one cost-based factor, *opportunity cost*, that could narrow the range of economically reasonable prices. To explore that concept, it is first necessary to expand the initial example.

D. AN EXPANSION TO THE EXAMPLE

Illustration of all of the relevant economic concepts requires extension of the example, to add a fourth possible market to serve. In particular, suppose that along with the A-C service, the firm could serve a new port pair, A-D, at the same 10 unit volume of traffic.⁴¹ Suppose the cost tradeoffs for the A-D and A-C combinations are as given in Table C-5.

⁴¹ So that the example stays no more complicated than necessary to illustrate the relevant principles, suppose also that it would never make economic sense to have traffic between any combination of Ports B, C or D, and that it would not be cost-effective to serve all three port pairs with a single string of vessels.

TABLE C-5 EXPANSION OF SCOPE ECONOMIES EXAMPLE (IN THOUSANDS, EXCEPT FOR AVERAGES)			
	<i>Ports A & D</i>	<i>Ports A & C</i>	<i>Ports A, C, & D</i>
Total Carriage			
Ports A & D	10	N/A	10
Ports A & C	N/A	10	10
Common Costs			
Voyage/Vessel Cost	\$9,000	\$10,000	\$16,750
Administration and General	5,500	4,500	9,500
Port A: Port & Cargo Handling	N/A	N/A	6,750
<i>Total Common</i>	\$14,500	\$14,500	\$33,000
Direct Costs			
Port A: Port & Cargo Handling	\$4,750	\$4,000	N/A
Port D: Port & Cargo Handling	4,500	N/A	\$4,500
Port C: Port & Cargo Handling	N/A	3,750	3,750
<i>Total Direct</i>	\$9,250	\$7,750	\$8,250
Total Cost Measures			
Ports A & D	\$23,750	N/A	Undefined
Ports A & C	N/A	\$22,250	Undefined
Ports A, C & D	N/A	N/A	\$41,250
Average Cost Measures			
Ports A & D	\$2,375.0	N/A	Undefined
Ports A & C	N/A	\$2,225.0	Undefined
Ports A, C & D	N/A	N/A	Undefined

This table reflects the same general pattern as Table C-1. Port D is hypothesized to be somewhat further from both A and C than B is, but still closer to C than to A. The A-D cargo and port costs are otherwise like Port B's. As a result, the stand-alone cost of the A-D service is \$1 million greater than that of the A-B service, and the combined A-C-D cost is \$500 thousand larger than the A-B-C cost.

It is just as (im)possible to allocate costs between the A-D and A-C port pairs in different ways as it was between the A-B and A-D pairs. Thus, Table C-6 is the A-C-D analogue of the Table C-4 for the A-B-C service combination. The proportions differ somewhat, but it is just as easy to calculate alternative, and

very different, cost allocations.

TABLE C-6 AVERAGE COST CONCEPTS WITH THREE-PORT SERVICE WITH EXPANDED SCOPE ECONOMIES EXAMPLE (IN THOUSANDS)			
	<i>Ports A & D</i>	<i>Ports A & C</i>	<i>Ports A, D & C</i>
Reference Costs:			
Stand-Alone Cost	\$2,325	\$2,225	N/A
Incremental Cost (<i>i.e.</i> , given that other service is provided)	1,900	1,750	N/A
Average Cost Concepts by Service. [Many equally (in)valid answers]:	?	?	?
1. Allocate common costs based on traffic levels	\$2,100	\$2,025	?
2. Allocate common costs based on direct costs	2,250	1,875	?
3. Assume A-D is base service; A-C service is incremental	2,375	1,750	?
4. Assume A-C is base service; A-D service is incremental	1,900	2,225	?
Range of Cost Allocations			
High minus Low	\$475	\$475	N/A
Range as Percentage of Stand-Alone Cost	20%	21%	N/A
Range as Percentage of Incremental Cost	25%	27%	N/A

Clearly, whether the carrier should provide the A-B-C service or the A-C-D service depends not only on the cost of providing the services, but also on how much revenue the firm can expect from the various combinations. This raises the concept of opportunity cost.

E. OPPORTUNITY COSTS

Suppose the firm expects it could charge the following amounts for 10,000 containers shipped between the respective markets:

A-B: \$22,500,000

A-C: \$18,250,000

A-D: \$22,750,000

Note that the A-B and A-C amounts are consistent with the prices hypothesized above in the discussion of Table C-4. Note also that none of these amounts covers the stand-alone cost of the individual products. If common-cost production is more efficient, this would be a frequent result.

Given the existence of alternative possible combinations of services, it is necessary to examine the tradeoffs among them. To keep the example simple, here I assume the A-C service will definitely be provided and calculate the opportunity cost between the A-B and A-D combinations, given the A-C combination. If the firm serves A-B, it incurs incremental costs of \$18.5 million and earns incremental revenues of \$22.5 million. If it serves A-D, it incurs incremental costs of \$19 million and earns incremental revenues of \$22.75 million. Thus, as shown in the top part of Table C-7, these two services imply a net contribution to common costs of \$4 million and \$3.75 million, respectively.

TABLE C-7 INCREMENTAL COSTS INCLUDING OPPORTUNITY COSTS WITH EXPANDED SCOPE ECONOMIES EXAMPLE (IN THOUSANDS)		
	<i>Ports A & B</i>	<i>Ports A & D</i>
Revenue	\$22,500	\$22,750
Incremental Cost	18,500	19,000
<i>Net Contribution to Common Costs</i>	\$4,000	\$3,750
Incremental Cost Type		
1. Common & Direct Costs	\$18,500	\$19,000
2. Opportunity Cost from Other Port	3,750	4,000
<i>Total</i>	\$22,250	\$23,000

Suppose the company were forced to charge a price below \$2,225 for the A-B service, driving the revenue below \$22.25 million. Then it would be better off to drop the A-B service and to switch to the A-D

service instead, because continued A-B service forgoes the more valuable opportunity of A-D service.⁴²

In the present context, the “opportunity” cost of a service is the difference between the net revenues (*i.e.*, the revenues minus incremental costs) a firm would make providing a particular service and the net revenues it would make applying the resources in question to their next best alternative use. The opportunity cost is as much an incremental cost of producing a given service as the direct costs themselves. Thus, given the option of either service A-B or A-D in addition to A-C, the bottom part of Table C-7 calculates the incremental costs of the various services including their opportunity cost.⁴³ Opportunity cost raises the incremental cost of the A-B service to \$22.25 million, reflecting the fact that no price below the \$2,225 level will keep the A-B service in operation.⁴⁴ Any cost allocation that concluded that a much lower price was required for the A-B service would lead to mistakes.

F. THE EFFECT OF RELATIVE SIZE

To this point, the appendix has demonstrated that: (1) it is impossible to determine “the” average or total cost for services produced with scope economies; (2) it therefore is equally impossible to make a unique, economically meaningful allocation of common costs for such services based on any accounting measure of outputs, inputs or other costs; and (3) accounting cost allocations that attempt to do so without considering demand-side effects can lead to serious mispricing.

There is one final issue to address: the likelihood of serious mistakes from accounting-based cost allocations is much greater for a service that is a small part of the total than for a service that is a large part

⁴² Actually, the carrier is not recovering total cost in this case, and would have to reconfigure the scale of its operations on the A-C-D service to do so. Yet it would still be better off than remaining with the A-B-C service and an even bigger loss.

⁴³ An example with additional combinations of port pairs that might be produced would necessitate a more complicated evaluation than shown in Table C-7 for the various services and combinations of services, but it would not change any of the economic conclusions of this section.

⁴⁴ Note that opportunity cost can be thought of as an economically meaningful consideration in common cost allocation because it measures a vital feature of the *demand* for potential alternative services (*i.e.*, the potential revenue from that port), given constraints on the number of ports that can be served with a given vessel string. It is not an allocation of the common production costs themselves according to an accounting-based criterion.

of the total.

To address this issue, I revise the initial example so that the A-C service is 90 percent (as measured by number of containers shipped) of the total combined service and the A-B service is 10 percent. The new conditions are contained in Table C-8, which may be compared with Table C-1.

TABLE C-8 REVISED EXAMPLE OF COSTS WITH SCOPE ECONOMIES (IN THOUSANDS, EXCEPT FOR AVERAGES)			
	<i>Ports A & B</i>	<i>Ports A & C</i>	<i>Ports A, B, & C</i>
Total Carriage			
Ports A & B	2	N/A	2
Ports A & C	N/A	18	18
Common Costs			
Voyage/Vessel Cost	\$1,750	\$15,000	\$16,250
Administrative and General	1,500	7,750	8,750
Port A: Port & Cargo Handling	N/A	N/A	7,250
<i>Total Common</i>	\$3,250	\$22,750	\$32,250
Direct Costs			
Port A: Port & Cargo Handling	\$1,250	\$6,750	N/A
Port B: Port & Cargo Handling	1,250	N/A	\$1,250
Port C: Port & Cargo Handling	N/A	6,500	6,500
<i>Total Direct</i>	\$2,500	\$13,250	\$7,750
Total Cost Measures			
Ports A & B	\$5,750	N/A	Undefined
Ports A & C	N/A	\$36,000	Undefined
Ports A, B & C	N/A	N/A	\$40,000
Average Cost Measures			
Ports A & B	\$2,875.0	N/A	Undefined
Ports A & C	N/A	\$2,000.0	Undefined
Ports A, B & C	N/A	N/A	Undefined

The revised example follows the premises set forth at the outset. The shift in relative volumes raises the relative cost of the stand-alone A-B vessels and lowers the relative cost of the stand-alone A-C vessels. The reduced ability to take advantage of cargo handling and A&G scale economies increases the relative

cost of the A-B service. Scope economies in cargo handling at Port A are less important with the less even mixture of cargo, but the greater proportion of the lower-cost A-C cargo makes the combined A-B-C service cheaper than before. The end result is an increase in the average cost per box for the A-B stand-alone service and a decrease for the A-C stand-alone service. The overall combined cost of the service comes down from \$40.75 million to \$40 million.

Table C-9 calculates the stand-alone and incremental costs for the revised example. It may be compared to Table C-2.

TABLE C-9 STAND-ALONE AND INCREMENTAL COSTS WITH REVISED SCOPE ECONOMIES EXAMPLE (THOUSANDS)	
	<i>Total Cost</i>
Incremental Cost of Port C, given Service for A & B	
Cost of Serving A, B & C	\$40,000
Stand-Alone Cost of A & B	5,750
<i>Incremental Cost of C</i>	\$34,250
Incremental Cost of Port B, given Service for A & C	
Cost of Serving A, B & C	\$40,000
Stand-Alone Cost of A & C	36,000
<i>Incremental Cost of B</i>	\$4,000
Sum of Stand-Alone Costs	\$41,750
Sum of Incremental Costs	\$38,250
Cost of Serving A, B & C	\$40,000

The import of the revised example comes when the costs in Table C-8 are allocated according to the rules used in Tables C-3 and C-4. This is done in Table C-10 for the average cost values. The contrast with Table C-4 is dramatic.

TABLE C-10 AVERAGE COST CONCEPTS WITH THREE-PORT SERVICE WITH REVISED SCOPE ECONOMIES EXAMPLE			
	Ports A & B	Ports A & C	Ports A, B & C
Reference Costs:			
Stand-Alone Cost	\$2,875	\$2,900	N/A
Incremental Cost (<i>i.e.</i> , given that other service is provided)	\$2,000	\$1,903	N/A
Average Cost Concepts by Service [Many equally (in)valid answers]:	?	?	?
1. Allocate common costs based on traffic levels	\$2,238	\$1,974	?
2. Allocate common costs based on direct costs	3,226	1,864	?
3. Assume A-B is base service; A-C service is incremental	2,875	1,903	?
4. Assume A-C is base service; A-B service is incremental	2,000	2,000	?
Range of Cost Allocations:			
High minus Low	\$1,226	\$136	N/A
Range as Percentage of Stand-Alone Cost	43%	7%	N/A
Range as Percentage of Incremental Cost	61%	7%	N/A

If the regulated service is the large one, A-C, the various rules lead to relatively small proportional changes in cost. However, if A-B is the regulated service, the various accounting-based rules lead to large proportional changes in costs. The reason is that for relatively large services, incremental and stand-alone cost per unit will be relatively close together, so the allocation rules will make less difference. For the smaller service, the various rules provide additional scope for arbitrary results. In the example, the possible range is *nine times* that of the smaller service. One of the A-B cost allocations even exceeds the stand-alone cost of service, a practice that could never survive if translated into rates.