Conducted to Avoid Bankruptcy, Similar Insolvency or Intervention Proceedings, or a Traditional Payment Default

The test is designed to exclude situations where performing companies launch tenders to amend the terms of their bonds to take advantage of market pricing, excess liquidity, expediency or other factors. We do not consider these situations DDEs.

This test asks whether investors face a genuine choice between the proposed terms and the original contractual terms, or if failure of a large part of the creditor group to accept the tender offer would call into doubt the issuer's ability to fulfil the original contractual terms.

Indications that this may be a DDE include an issuer making explicit public statements that it may be forced to default on an instrument if the exchange is not completed or an issuer having an untenable liquidity profile.

DDE Criteria for Revolving Credit Facilities and Term Loans

Material Reduction in Terms

A material reduction in terms, by itself, is not sufficient for an amendment to a revolving credit or term loan to be classified as a DDE. The flexibility of loans compared with bonds, and the frequency with which loans are amended across the spectrum of credit quality, make it difficult to have a categorical determination of a DDE for a loan.

For example, extending the maturity and reducing the interest on a revolving loan could result either from an improvement or deterioration in credit quality, and non-payment defaults caused by covenant violations are commonly waived or amended. Amendments to maturity dates and pricing are commonplace for credit facilities for a variety of reasons (including the issuer taking advantage of improvements in credit quality, for example).

In addition to the examples in the bonds section, a material reduction in terms could feature any one or a combination of the following:

- The introduction of PIK interest (but not the exercise of a previously agreed PIK option);
- An exchange of debt for equity.

Conducted to Avoid Bankruptcy, Similar Insolvency or Intervention Proceedings, or a Traditional Payment Default

A material reduction in terms by itself would not be considered at DDE unless one or a combination of the following factors is present:

- The issuer's declared intention to file for bankruptcy if the loan amendment is not accepted;
- A reduction in terms coupled with a concurrent bond exchange considered to be a DDE;
- Above-market compensation (e.g. equity in addition to rather than in exchange for debt or interest materially above market);
- A significant reduction in terms coupled with an obvious, significant deterioration in credit quality; and/or
- Use of a formal court process (including forms of European pre-insolvency schemes of arrangement) to change original contractual terms to impose changes upon creditors outside a formal bankruptcy or insolvency framework (such as Chapter 11 in the US).

Additional Considerations for Other Financial Obligations

Factors suggesting a DDE for obligations, such as leases include:

- A public or semi-public process;
- The involvement of all or a substantial portion of one or more classes of obligors;
- Explicit written reference to the process being undertaken to avoid default;
- The use of a court-sanctioned or court-supervised process; and/or

- The potential for some members of a creditor class being compelled to engage in an exchange against their will by a majority vote.

Ratings Implications

IDRs

Pre-Execution

On the announcement of a prospective debt exchange offer that Fitch determines to be a DDE, the IDR will typically be lowered to 'C'. In situations where the completion of the DDE is subject to material uncertainty – for example, because of a minimum acceptance level that the agency believes may not be reached – a Rating Watch Negative classification may be used as an alternative to lowering the IDR to 'C'.

For non-financial corporates, a DDE proposal may target one or more debt issues within an issuer's multi-tiered capital structure and certain debt issues are unaffected. In such cases, to reflect the likelihood of the impending default, the IDR of the issuer will be lowered to 'C' as described above, but unaffected instrument ratings may stay at their existing rating levels and may be placed on Rating Watch. A Rating Watch Negative or Positive for the unaffected issues may reflect the potential ratings following the DDE, depending on analytical visibility of the post-DDE capital structure at the time of this rating action.

These unaffected instrument ratings may temporarily stretch the recovery uplifts beyond normal Recovery Ratings criteria, but in order to not create ratings volatility, these instrument ratings can stay at the same rating level for up to 90 days. If the DDE is not executed within 90 days, Fitch will review the execution and timing of the DDE and the likelihood of the unaffected instrument ratings maintaining their creditworthiness. The IDR changes when the DDE transaction is executed, including registering its 'RD', but unaffected instrument ratings will not change unless their creditworthiness changes as a result of the post-execution profile. Fitch expects this situation to apply to non-financial corporate entities with IDRs of 'B-' and lower.

On Execution

On completion of the exchange, the IDR will be lowered to 'RD' to record the default event unless an issuer's IDR is already at 'RD' because default has already occurred in another form (e.g. uncured non-payment of coupon).

Post-Execution

Once sufficient information is available, the 'RD' rating will be re-rated to reflect the appropriate IDR for the issuer's post-exchange capital structure, risk profile and prospects in accordance with relevant Fitch criteria.

At the same time as the new IDR is assigned, all related issue ratings may be adjusted, including those that were not part of the exchange, to ensure that all ratings are consistent with applicable notching guidelines in the relevant criteria. It is difficult to define precisely the length of time that the IDR will remain at 'RD' before the new post-exchange IDR is assigned. However, it may occur contemporaneously (i.e. the IDR is downgraded to 'RD' and then upgraded to its new post-exchange level on the same day and in a single rating action commentary).

If the DDE does not close, Fitch will review the issuer's liquidity and solvency prospects and assign the appropriate IDR.

Bond Issues

Tendered Bond Issues

The ratings of securities of an issuer that are subject to a prospective DDE are likely to be lowered to very low speculative grade – typically in the 'C' to 'CCC' range – on announcement of the DDE. On completion of the exchange, the ratings of the securities subjected to the DDE will be downgraded to a level consistent with non-performing instruments, if not at such a level already (see Fitch's *Rating Definitions* at www.fitchratings.com). In most instances, this is likely to be 'CC' or 'C'. Where a security rating does not incorporate recovery prospects, as is the case for most public finance and global infrastructure ratings, the security rating will be set to 'D', as indicated by applicable criteria.

The issue ratings will then be withdrawn after a short time, reflecting that those securities have been extinguished in the exchange, if the entire issue was exchanged.

Untendered Bond Issues

The ratings of securities that are not tendered and continue to be serviced will remain at very low speculative grade – typically in the 'C' to 'CCC' range – until the exchange is completed. They will then be rated according to applicable criteria reflecting, where appropriate, the specific issue structure and recovery prospects, as well as the issuer's new financial and operating/business profile. In the event that insufficient information is available to enable Fitch to maintain ratings on any untendered bond issues, the agency will withdraw those obligation ratings.

The treatment of unaffected debt for non-financial corporates with a multi-tiered capital structure is detailed above.

New Bond Issues

Any new bond issue or loan resulting from a DDE will be rated under applicable criteria on the issuing entity's financial and operating/business profile post-exchange, with consideration given to issue structure and recovery prospects, where applicable. It is not relevant to the rating that the issuer or the new security issue was a product of a DDE.

Appendix 4: Guide to Credit Metrics

Fitch uses a variety of quantitative measures of cash flow, earnings, leverage and coverage to assess credit risk. The following sections summarise the key credit metrics used to analyse credit default risk.

Given the limitations of EBITDA as a pure measure of cash flow, Fitch utilises a number of other measures for the purpose of assessing debt-servicing ability. These include funds flow from operations (FFO), cash flow from operations (CFO) and free cash flow (FCF), together with leverage and coverage ratios based on those measures which are more relevant to debt-servicing ability and, therefore, to default risk than EBITDA-based ratios.

Definitions of Cash-Flow Measures

	Revenues
–	Operating expenditure
+	Depreciation and amortisation
+	Long-term rentals[a]
=	**Operating EBITDAR**
+/–	Recurring dividends received from associates less cash dividends paid to minority interests[b]
–	Cash interest paid, net of interest received
–	Cash tax paid
–	Long-term rentals[a]
+/–	Other changes before FFO[c]
=	**Funds flow from operations (FFO)**
+/–	Working capital
=	**Cash flow from operations (CFO)**
+/–	Non-operational cash flow
–	Capex
–	Ordinary dividends paid to shareholders of the parent company
=	**Free cash flow (FCF)**
+	Receipts from asset disposals
–	Business acquisitions
+	Business divestments
+/–	Exceptional and other cash-flow items
=	**Net cash in/outflow**
+/–	Equity issuance/(buyback)
+/–	Foreign exchange movement
+/–	Other items affecting cash flow[d]
=	**Change in net debt**
	Opening net debt
+/–	Change in net debt
	Closing net debt

[a] Analyst estimate of long- term rentals. Includes IFRS16/ASC842 lease depreciation and interest.
[b] Associate Dividends may be excluded from EBITDA, FFO and CFO if Non-Operational or Non-Recurring
[c] Implied balancing item to reconcile Operating EBITDAR with Funds Flow from Operations
[d] Implied balancing item to reconcile FCF with Change in Net Debt
Source: Fitch Ratings

Definitions of Key Concepts

Operating EBITDA and EBITDAR	Operating EBITDA is a widely used measure of an issuer's unleveraged, untaxed cash-generating capacity from operating activities. Fitch usually excludes extraordinary items, such as asset write-downs and restructurings, in calculating operating EBITDA — unless an issuer has recurring one-time charges which indicate the items are not unusual in nature. Fitch would also exclude movements in fair value contained in operating profit. Fitch's operating EBITDA is computed after deducting estimated rental expense based on the depreciation of leased assets plus interest on lease liabilities. The use of operating EBITDA plus estimated rental expense (EBITDAR, including operating lease payments) improves comparability across industries (e.g. retail and manufacturing) that exhibit different average levels of lease financing and within industries (e.g. airlines) where some companies use lease financing more than others.
Funds flow from operations Post-interest and tax, pre-working capital	FFO is the fundamental measure of the firm's cash flow after meeting operating expenses, including estimated rental expense, taxes and interest. FFO is measured after cash payments for taxes, cash received from associates, interest and preferred dividends paid, and after dividends paid to minority interests, but before inflows or outflows related to working capital. Fitch's computation subtracts or adds back an amount to exclude non-core or non-operational cash inflow or outflow. FFO offers one measure of an issuer's operational cash-generating ability before reinvestment and before the volatility of working capital. When used in interest coverage and leverage ratios, net interest is added back to the numerator.
Working capital	Fitch calculates the change in working capital through the annual swings in trade receivables, trade inventory, trade payables and any other relevant working-capital item. It also includes analytical adjustments that affect working capital, such as factoring, where sold receivables are added back to trade receivables to reverse the effects of factoring on working capital.
Cash flow from operations Post-interest, tax and working capital	CFO represents the cash flow available from core operations after all payments for ongoing operational requirements, estimated rental expense, cash received from associates, dividends paid to minority interests, interest paid, interest received, preference dividends and tax. CFO is also measured before reinvestment in the business through capex, before receipts from asset disposals, before any acquisitions or business divestment, and before the servicing of equity with dividends or the buyback or issuance of equity.
Free cash flow Post-interest, tax, working capital, capex and dividends	FCF is the third key cash-flow measure in the chain. It measures an issuer's cash from operations after capex, non-recurring or non-operational expenditure, and dividends. It also measures the cash flow generated before account is taken of business acquisitions, business divestments, and any decision by the issuer to issue or buy back equity, or make a special dividend.
Liquidity	Factors that contribute to financial flexibility are the ability to revise plans for capital spending, strong banking relationships, the degree of access to a range of debt and equity markets, committed, long-dated bank lines and the proportion of short-term debt in the capital structure. These issues are incorporated in the liquidity concept. The liquidity score is calculated as the amount of readily available cash to service or meet debt and interest obligations, including availability under committed lines of credit and after taking into account debt maturities within one year and also factoring expected free cash-flow generation over the coming year.
Committed bank facilities	In corporate analysis — and particular financial ratios — sources of liquidity include headroom, or undrawn funds, under committed bank facilities relevant for the period. Bank facilities which (i) are a contractual commitment to lend, (ii) have more than one year until maturity, and (iii) Fitch believes that the relevant bank will lend such amounts taking into account breach of covenant or other considerations, can be included as a source of liquidity. Not all countries have such long-term committed bank funding facilities.
Gross debt and net debt **Gross interest and net interest paid**	Debt represents total debt or gross debt, while net debt is total debt minus (freely available/unrestricted) cash based on Fitch's readily available cash. This "freely available cash" may be adjusted for restricted or blocked cash, operational cash requirements within the group, and other forms of cash not freely available for debt reduction. Recognising the cultural differences in the approach of analysts and investors worldwide, Fitch evaluates various debt measures on both a gross and net debt basis. Distinctions are also made between total interest and net interest paid.

Source: Fitch Ratings

Main Leverage and Coverage Ratios

FFO interest coverage	This is a central measure of the financial flexibility of an entity. It compares the operational cash-generating ability of an issuer (after tax) to its financing costs. Many factors influence coverage, including the relative levels of interest rates in different jurisdictions, the mix of fixed-rate versus floating-rate funding, and the use of zero-coupon or payment-in-kind (PIK) debt. For this reason, the coverage ratios should be considered alongside the appropriate leverage ratios.
FFO fixed-charge coverage	This measure of financial flexibility is of particular relevance for entities that have material levels of lease financing. It is important to note that this ratio inherently produces a more conservative result than an interest cover calculation (ie coverage ratios on debt-funded and lease-funded capital structure are not directly comparable), as the entirety of the rental expenditure (i.e. the equivalent of interest and principal amortisation) is included in both the numerator and denominator.
FCF debt-service coverage	This is a measure of the ability of an issuer to meet debt service obligations, both interest and principal, from organic cash generation, after capex – and assuming the servicing of equity capital. This indicates the entity's reliance upon either refinancing in the debt or equity markets or upon conservation of cash achieved through reducing common dividends or capex or by other means.
FFO (net) adjusted leverage or total adjusted debt/operating EBITDAR	This ratio is a measure of the debt burden of an entity relative to its cash-generating ability. This measure uses a lease-adjusted debt equivalent, and takes account of equity credit deducted from hybrid debt securities that may display equity-like features and other off-balance-sheet debt. Leases are capitalised as a multiple of estimated rental expnse, with the multiple depending on the industry and interest-rate environment as laid out in *Appendix 1.1*, except for in the transportation sectors where the IFRS16/ASC842 disclosed lease liability is used. EBITDAR based ratios are computed after recurring dividends received from associates/equity method investments and dividends paid to minorities (or, alternatively, net income attributable to minorities).
FFO (net) leverage or total debt with equity credit/operating EBITDA	These ratios are have a similar function as and are defined very similarly to the adjusted ratios, although they exclude lease-equivalent debt in the numerator and/or rental expense in the denominator. These ratios are especially relevant for issuers that operate in a sector that uses the leases-opex approach (see *Appendix 1* for further details). Like EBITDAR, EBITDA is computed after recurring divdiends are received from associates/equity method investments and dividends paid to minorities (or, alternatively, net income attributable to minorities).
Pension-adjusted leverage	If, over a number of years, pension-adjusted ratios are significantly higher than their unadjusted counterparts, further investigation is performed to understand the broader risks posed to the company by its pension scheme, including a company's funding obligations in the jurisdictions in which it operates, the risks inherent in its funding strategy, and — importantly — the implications these have for the cash drain on the company's resources.

Source: Fitch Ratings

Financial Terms and Ratios

Main Terms

Fitch-defined term	Definition
Operating EBIT	Gross Profit - SG&A or O&M Expense - R&D Expense - Provision for Bad Debts - Depreciation of Tangible assets - Amortisation of Intangible Assets - -Depreciation of Leased Assets – Interest Charge on Lease Liabilities - Other Depreciation and Amortisation excluded from SG&A – Impairments included in EBIT/DA - Pre-Opening & Exploration Expense - Regulatory Fees + Other Operating Income / (Expenses) - Securitisation Amortisation
Operating EBITDA	Operating EBIT + adjustment for Non-Recurring/Non-Recourse items +non-lease depreciation & amortisation + analyst adjustments to EBITDA
Operating EBITDAR	Operating EBITDA + estimated Operating Lease Expense
Cash Flow from Operations (CFO)	Net Income + Total Adjustments to Net Income + Change in Working Capital + Recurring Cash Dividends Received from Associates/Equity Method Investments + Investing & Financing Cash Flow deemed as Operating - Dividends Paid to Preferred Shareholders - Distributions to Non-Controlling Interests
Fitch defined working capital	Change in Receivables + Change in trade payables + Change in Inventory + Change in Accrued Expenses + any other changes in w/cap
Funds from Operation (FFO)	Cash Flow From Operations (CFO) - Change in Fitch-defined Working Capital
Free Cash Flow (FCF)	Cash Flow from Operations - Capex - Common Dividends + Total Non-Operating & Non-Recurring Cash Flow before business acquisition, business divestments and share buyback/special dividends.
Total debt	Total Secured Debt + Total Unsecured Debt + Total Subordinated Debt + Preferred Stock+ Short-term non-recourse Debt + Long-tern non-recourse Debt + Securitisation Debt + Net Derivative (assets)/liabilities Hedging Principal Borrowings
Total debt with equity credit	Total Debt - Equity Credit
Total adjusted debt with equity credit	Total Debt with Equity Credit + Lease equivalent Debt + Other off Balance Sheet Debt
Readily available cash & equivalents	Cash + Marketable Securities - Cash reported as Restricted or Blocked - Cash deemed by Fitch as not readily available (including adjustments for minimum cash required for ongoing operations such as seasonality, Working Capital fluctuations and Cash Held by not Wholly Owned or Non-Recourse Subsidiaries or in Offshore Holdings)
Net adjusted debt with equity credit	Total Adjusted Debt with Equity Credit - Readily Available Cash & Equivalents
Interest paid/received	Cash interest is used in coverage ratios, but if Interest Paid or Interest Received equal zero then Interest Expense and Interest Income as per the P&L is used instead.

Source: Fitch Ratings

Main Ratios

Ratio	Numerator	Denominator
Profitability/cash flow ratios		
EBIT margin	Operating EBIT	Revenues
EBIT margin - Group	Operating EBIT including financial services operations	Consolidated revenues
EBIT margin - Industrial	Operating EBIT excluding financial services operations	Industrial operation revenues
Operating EBITDAR margin	Operating EBITDAR	Revenues
FFO margin	FFO	Revenues
FCF margin	FCF	Revenues
Capex/CFO	Capex	Cash Flow from Operations
CFO margin	Cash Flow From Operations	Revenues
Leverage ratios		
Total adjusted debt/op. EBITDAR (x)	Total Adjusted Debt with Equity Credit	Operating EBITDAR + Recurring Dividends received from Associates and Equity Method Investments - Dividends paid to Minorities (or, alternatively, net income attributable to non-controlling interests)
Total adjusted net debt/op. EBITDAR (x)	Net Adjusted Debt with Equity Credit	Operating EBITDAR + Recurring Dividends received from Associates and Equity Method Investments - Dividends paid to Minorities (or, alternatively, net income attributable to non-controlling interests)
FFO adjusted leverage (x)	Total Adjusted Debt with Equity Credit	FFO + Interest Paid - Interest Received + Preferred Dividends (Paid) + Operating Lease Expense for Capitalised Leased Assets
FFO adjusted net leverage (x)	Net Adjusted Debt with Equity Credit	FFO +Interest Paid - Interest Received + Preferred Dividends (Paid) + Operating Lease Expense for Capitalised Leased Assets
FFO leverage (x)	Total Adjusted Debt with Equity Credit – Lease Equivalent Debt	FFO + Interest Paid – Interest Received + Preferred Dividends (Paid)
FFO net leverage (x)	Total Adjusted Debt with Equity Credit – Lease Equivalent Debt – Readily Available Cash & Equivalents	FFO + Interest Paid – Interest Received + Preferred Dividends (Paid)
(CFO – CapEx)/Total Debt with Equity Credit (%)	Cash Flow from Operations [CFO] – Capital (Expenditures)	Total Adjusted Debt with Equity Credit - Lease Equivalent Debt
(CFO – CapEx)/Total Net Debt with Equity Credit (%)	Cash Flow from Operations [CFO] – Capital (Expenditures)	Total Adjusted Debt with Equity Credit – Lease Equivalent Debt – Readily Available Cash & Equivalents
FCF/total adjusted debt (%)	FCF	Total Adjusted Debt with Equity Credit

Main Ratios (Cont.)

Ratio	Numerator	Denominator
Total debt with equity credit/op. EBITDA (x)	Total Adjusted Debt with Equity Credit – Lease Equivalent Debt	Operating EBITDA + Recurring Dividends received from Associates and Equity Method Investments - Dividends paid to Minorities (or, alternatively, net income attributable to non-controlling interests)
Total net debt with equity credit/operating EBITDA	Total Adjusted Debt with Equity Credit – Lease Equivalent Debt - Readily Available Cash & Equivalents	Operating EBITDA+ Recurring Dividends received from Associates and Equity Method Investments - Dividends paid to Minorities (or, alternatively, net income attributable to non-controlling interests)
Total adj. debt/(CFO before lease expense - Maint. CapEx) (x)	Total Adjusted Debt with Equity Credit	Cash Flow From Operations [CFO] + Operating Lease Expense for Capitalised Leased Assets- Maintenance Capex (total capex used if maintenance capex unavailable)
Coverage ratios		
FFO fixed-charge coverage (x)	FFO + Interest paid - interest received + Preferred Dividends paid + Operating Lease Expense for Capitalised Leased Assets	Interest Paid + Preferred Dividends Paid + Operating Lease Expense for Capitalised Leased Assets
FFO interest coverage (x)	FFO + Interest paid minus interest received + Preferred Dividends paid	Interest Paid + Preferred Dividends Paid
Operating EBITDAR/gross interest paid + rents (x)	Operating EBITDAR + Recurring Dividends received from Associates and Equity Method Investments - Dividends paid to Minorities (or, alternatively, net income attributable to non-controlling interests)	Interest Paid + Operating Lease Expense for Capitalised Leased Assets
Operating EBITDAR/net interest paid + rents (x)	Operating EBITDAR + Recurring Dividends received from Associates and Equity Method Investments - Dividends paid to Minorities (or, alternatively, net income attributable to non-controlling interests)	Interest Paid - Interest Received + Operating Lease Expense for Capitalised Leased Assets
Op. EBITDA/interest paid (x)	Operating EBITDA+ Recurring Dividends received from Associates and Equity Method Investments - Dividends paid to Minorities (or, alternatively, net income attributable to non-controlling interests)	Interest Paid

Main Ratios (Cont.)

Ratio	Numerator	Denominator
Op. EBITDAR/(interest paid + lease expense) (x)	Operating EBITDAR + Recurring Dividends received from Associates and Equity Method Investments - Dividends paid to Minorities (or, alternatively, net income attributable to non-controlling interests)	Interest Paid+ Operating Lease Expense for Capitalised Leased Assets
CFO/capex (x)	Cash Flow from Operations [CFO]	Capital (Expenditures)
Capex/CFO (%)	Capital (Expenditures)	Cash Flow from Operations [CFO]
Liquidity ratios		
FFO debt service coverage	FFO + Interest paid minus interest received + Preferred Dividends + Operating Lease Expense for Capitalised Leased Assets	Interest Paid + Preferred Dividends + Current Debt Maturities
Liquidity (liquidity ratio)	Available cash + undrawn portion of committed facilities + FCF	12-month debt Maturities

Source: Fitch Ratings

Navigator Ratios

Navigator	Ratio	Numerator	Denominator
Hotels	Unencumbered Assets to Unsecured Debt	Balance Sheet Value of Unencumbered Assets	Total Debt - Secured Debt
Restaurant Companies	Restaurant Level Margin (%)	Revenue (excluding revenue from franchised units) less the cost of food and beverages, labour, occupancy and other direct restaurant-level expenses (including marketing)	Revenue
Engineering and Construction	Corporate Gross Debt/Concession Book Value	Total Debt with Equity Credit, with Recourse to Rated Entity	Book Value of Concession Portfolio
U.S. Homebuilders	Net Debt/Capitalisation	Total Debt with Equity Credit - Readily Available Cash & Equivalents	Net Debt + Shareholder's Equity (excluding non-controlling interest)
U.S. Homebuilders	Cash & RCF Avail./Next Three Years Maturities	Readily Available Cash & Cash Equivalents + Available Portion of Committed Revolver	Total Debt Maturing in the Next Three Years
U.S. Homebuilders	Inventory/Debt	Balance Sheet Value of Land Holdings and Homes in Production (including Capitalised Interest), excludes 'Inventory Not Owned'	Total Debt with Equity Credit

Navigator Ratios (Cont.)

Navigator	Ratio	Numerator	Denominator
Chinese Homebuilders	Contracted Sales/Total Debt	Attributable Contracted Sales (as reported by the issuer on a monthly, quarterly or semi-annual basis)	Total Debt with Equity Credit + Other Off Balance Sheet Debt
Chinese Homebuilders	Contracted Sales/Net Inventory	Attributable Contracted Sales (as reported by the issuer on a monthly, quarterly or semi-annual basis)	Balance Sheet Value of Properties Under Development, Completed Properties Held for Sale, Land Use Rights, Prepaid Land Premium Deposits and Investment Properties
Chinese Homebuilders	Net Debt/Net Inventory	Total Debt with Equity Credit + Other Off Balance Sheet Debt - Readily Available Cash & Equivalents	Balance Sheet Value of Properties Under Development, Completed Properties Held for Sale, Land Use Rights, Prepaid Land Premium Deposits and Investment Properties
APAC Property/REITs	Recurring Operating EBITDA Margin	Operating EBITDA After Associates and Minorities	Revenues
APAC Property/REITs	Net Debt/Recurring Operating EBITDA	Total Debt with Equity Credit + Other Off Balance Sheet Debt - Readily Available Cash & Equivalents	Operating EBITDA After Associates and Minorities
APAC Property/REITs	LTV (Net Debt/Investment Properties)	Total Debt with Equity Credit + Other Off Balance Sheet Debt - Readily Available Cash & Equivalents	Balance Sheet Value of Investment Properties
APAC Property/REITs	Liquidity Coverage	Available Cash + Undrawn Portion of Committed Facilities + FCF	12-month Debt Maturities
APAC Property/REITs	Unencumbered Asset Cover	Balance Sheet Value of Unencumbered Assets	Total Debt - Secured Debt - Readily Available Cash & Equivalents
APAC Property/REITs	Recurring Income EBITDA Interest Coverage	Operating EBITDA After Associates and Minorities	Interest Paid
EMEA Real Estate and Property	FFO Dividend Coverage	FFO	Dividends Paid
EMEA Real Estate and Property	Loan-to-Value	Total Debt with Equity Credit + Other Off Balance Sheet Debt - Readily Available Cash & Equivalents	Balance Sheet Value of PPE - Construction in Progress - Land Held for Development
EMEA Real Estate and Property	Unencumbered Asset Cover	Balance Sheet Value of Unencumbered Assets	Total Debt - Secured Debt
EMEA Real Estate and Property	Net Debt/Recurring Operating EBITDA	Total Debt with Equity Credit + Other Off Balance Sheet Debt - Readily Available Cash & Equivalents	Operating EBITDA After Associates and Minorities
EMEA Real Estate and Property	Liquidity Coverage	Available Cash + Undrawn Portion of Committed Facilities + FCF	12-month Debt Maturities

Navigator Ratios (Cont.)

Navigator	Ratio	Numerator	Denominator
EMEA Real Estate and Property	Recurring Income EBITDA Interest Cover	Operating EBITDA After Associates and Minorities	Interest Paid
Latin America Real Estate	Recurring Operating EBITDA Margin	Operating EBITDA After Associates and Minorities	Revenues
Latin America Real Estate	Net Debt/Recurring Operating EBITDA	Total Debt with Equity Credit +Other Off Balance Sheet Debt - Readily Available Cash & Equivalents	Operating EBITDA After Associates and Minorities
Latin America Real Estate	LTV (Net Debt/Investment Properties)	Total Debt with Equity Credit + Other Off Balance Sheet Debt - Readily Available Cash & Equivalents	Balance Sheet Value of PPE - Construction in Progress - Land Held for Development
Latin America Real Estate	Unencumbered Asset/Net Unsecured Debt	Balance Sheet Value of Unencumbered Assets	Total Debt - Secured Debt - Readily Available Cash & Equivalents
Latin America Real Estate	Liquidity Coverage	Available Cash + Undrawn Portion of Committed Facilities + FCF	12-month Debt Maturities
Latin America Real Estate	Recurring Income EBITDA Interest Cover	Operating EBITDA After Associates and Minorities	Interest Paid
U.S. Equity REITs and REOCs	AFFO Payout Ratio	US REIT-defined FFO - Maintenance Capex - Capitalised Leasing Costs	Total Common Share and Unitholder Dividends
U.S. Equity REITs and REOCs	Net Debt/Recurring Operating EBITDA	Consolidated debt - Fitch Estimated Readily Available Cash & Equivalents	Consolidated EBITDA, adjusted for non-routine items and recurring estimated cash distributions from unconsolidated joint ventures
U.S. Equity REITs and REOCs	Unencumbered Assets/Net Unsecured Debt	Fitch-estimated Unencumbered Asset Value Based on a Stressed, Through-the-cycle Cap Rate Applied to Unencumbered Property Net Operating Income	Total Debt - Secured Debt - Fitch Estimated Readily Available Cash & Equivalents
U.S. Equity REITs and REOCs	Liquidity Coverage	Readily Available Cash & Equivalents + Undrawn Portion of Committed Facilities + 6-9 Quarters of Estimated Cashflow From Operations after Common Dividends	6-9 Quarters of Pro Rata Debt Maturities + Estimated Maintenance Capex + Unfunded Development Commitments
U.S. Equity REITs and REOCs	U.S. REIT FFO Interest Coverage	Consolidated EBITDA, adjusted for non-routine items and recurring estimated cash distributions from unconsolidated joint ventures, less recurring maintenance and leasing capex.	Interest Paid + Preferred Dividends Paid

Navigator Ratios (Cont.)

Navigator	Ratio	Numerator	Denominator
Australian Regulated Network Utilities	Return on Capital	Net Income	Total Debt with Equity Credit + Shareholders' Equity
Australian Regulated Network Utilities	Net Debt / Regulated Asset Base	Total Debt with Equity Credit- Readily Available Cash & Equivalents	As reported by issuers
EMEA Regulated Networks	Adjusted Net Debt / Asset Base (or Regulated Asset Base)	Total Debt adjusted for Pensions and Swaps - Readily Available Cash & Equivalents	Balance Sheet Value of PP&E or Regulated Asset Base (where available)
EMEA Regulated Networks	Cash PMICR	Adjusted EBITDA - Nominal Regulatory Depreciation - Cash Tax - Cash Pension Deficit Repair	Interest Paid
EMEA Regulated Networks	Nominal PMICR	Adjusted EBITDA - Nominal Regulatory Depreciation - Cash Tax - Cash Pension Deficit Repair - Annual RAV Indexation	Interest Paid + Deferred Interest
EMEA Regulated Networks	Dividend Cover	Dividends received from operating company (on a recurring basis)	Standalone debt interest of the holding company
Latin America Utilities	Liquidity	Readily Available Cash & Equivalents + Cash Flow from Operations	12-month Debt Maturities

Source: Fitch Ratings

Appendix 5: Local-Currency IDR, Foreign-Currency IDR, OE, Sovereign Rating and Country Ceiling

An issuer's LC IDR incorporates the business and financial risks of the entity, as well as risks related to the OE. LC IDRs are generally viewed as reflecting the underlying credit quality of the company and incorporate economic/political risk and liquidity and foreign-exchange risks. While LC IDRs measure the likelihood of repayment in the currency of the jurisdiction, they do not account for the possibility that it may not be possible to convert LC into FC or make transfers between sovereign jurisdictions, ie transfer and convertibility risks.

The LC IDR incorporates the probability of default for all of an issuer's debt obligations (LC- and FC-denominated) in the absence of T&C risks. This factors in the probability that an issuer under stress will default on all obligations and will not pick and choose specific debt instruments on which to default. Therefore, when the LC Rating is at or below the Country Ceiling, the LC and FC Ratings are equal virtually all of the time.

The LC IDR of a corporate entity may be rated above the sovereign's LC IDR, although sovereign risk factors can often affect a financially strong entity and constrain an issuer's LC IDR at or above the sovereign's LC IDR. The degree to which the corporate LC IDRs are constrained by the sovereign LC IDR depends on a diverse set of factors and circumstances, including:

- type of business and industry position;
- exposure to the local economy;
- product destination and customer location;
- cost structure — local versus imported supplies;
- degree of regulation and importance to public policy goals;
- ownership structure;
- financial strength; and
- debt profile, i.e. capital market debt versus bank debt, and hard-currency versus local-currency debt.

Appendix 6: Sector Navigators

Structure of Navigator

Key Factors: Each Navigator includes a Sector-Risk Profile, an OE assessment, five Business Profile and three Financial Profile factors. Each Key Factor is captured on the Navigator as a three-notch wide range rather than a notch-specific assessment as the latter would be artificially precise.

Sector-Risk Profile: This identifies typical upper boundaries for credit ratings, highlighting that not all sectors are conducive to issuers rated in high rating categories.

Operating Environment: This reflects the impact on the issuer's profile of the wider, non-sector-specific context in which it operates. Please see page 65 for further details on how Fitch assesses OE.

Management and Corporate Governance: This factor is common to all Sector Navigators and includes an assessment of the management strategy, the structure and quality of corporate governance, risks related to the group structure and the degree of financial transparency.

Four Sector-Specific Key Factors: These assess the strength of the business profile of the issuer in its sector. These individual factors help position the issuer within the ranges provided under the Sector Risk Profile.

Three Financial Key Factors: Profitability, Financial Structure and Financial Flexibility factors are common to all Sector Navigators. The choice of individual ratios and their mid-points per rating category vary from sector to sector, reflecting the varying risk profile of different sectors.

How the Factors and Sub-Factors Work

Key Factors and Their Sub-Factors

Each Factor can in turn be divided into up to five Sub-Factors.

The left-most column's *Overall Factor Assessment* for each Factor shows the three-notch band assessment for that overall Factor as a whole. The columns further to the right then break down the Sub-Factors, with the title of each Sub-Factor, followed by the selected description appropriate for each Sub-Factor and its corresponding rating category.

Diversification

Overall factor assessment	Sub-factors	Sub-factor selected description	Category
a+	Geographic diversification	Revenue base well spread out geographically	a
a	Commercial vs. defence split	Active in both commercial and defence segments, although one dominates	bbb
a-	Programme/product diversification	Active in a large number of programme	a
bbb+	Aftermarket presence	Moderate aftermarket presence	bbb
bbb	Customer concentration (Non-prime suppliers)	Limited exposure to a particular customer, top customer less <10% of revenue and top-five programmes <30% of revenue	a

Source Fitch Ratings

The banding for Sector-Risk and OE extend from low 'b' to the upper range of the sector risk profile or OE assessment as the Sector Risk Profile ultimately reflects a form of magnet upon the upper limit of a rating without presenting a floor for the rating, and the OE does not usually have an impact on the rating if it is stronger than the credit profile of the issuer before its impact is considered.

Not all Factors or Sub-Factors have an option to select from all rating categories, acknowledging the lack of observations for some sectors at the highest rating levels. While Sub-Factors common to all sectors such as Corporate Governance are generally defined for the whole range of rating categories, i.e. from 'aa' to 'b', sector-specific Sub-Factors (such as *Commercial Versus Defence Split* in the Aerospace and Defence Navigator) are defined only for rating categories within the upper boundary of the relevant Sector Risk Profile.

In the above example, all Aerospace and Defence-specific Sub-Factors will be defined up to the 'a' rating category as the Sector-Risk profile for aerospace and defence is positioned up to the 'a+' rating level. By contrast, Sub-Factors for Building Materials' Navigators are defined up to the 'bbb' rating category as the Sector-Risk profile for that sector ranges up to the 'bbb+' rating level.

The Sub-Factor assessment is made at the simple rating category level (i.e. 'bbb', 'bb' without + or – modifiers). In contrast, after blending, the three-notch range for the Overall Factor Assessment can straddle rating categories. For example, if the assessment is borderline investment grade, a mid-point of 'bb+' (i.e. a subfactor range of 'bb' to 'bbb–') or 'bbb–' (a subfactor range of 'bb+' to 'bbb') could be indicated.

The Overall Factor Assessment balances each Sub-Factor's strengths, weaknesses and relative influence in the particular case under consideration. The Factor's three-notch mid-point is not expected to be a mathematical average of the Sub-Factors, although in some instances (if they all have equal relative importance) this may be the case. However, it is possible for one Sub-Factor to be of overriding importance in the Overall Factor Assessment.

For example, in the table below, the very weak Governance Structure weighs down heavily on the overall assessment for the Management and Corporate Governance Key Factor. The resulting three-notch band centred on 'bb–' is significantly lower than a simple mathematical average of the sub-factors, which would have yielded a result of 'bb+'.

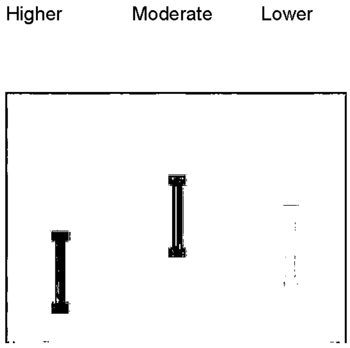
Management and Corporate Governance

Overall factor assessment	Sub-factors	Sub-factor selected description	Category
bb+	Management Strategy	Strategy may include opportunistic elements but soundly implemented.	bbb
bb	Governance Structure	Poor governance structure. Ineffective board with none or token-independent directors. Decision-making in the hands of one individual.	b
bb-	Group Structure	Some group complexity leading to somewhat misleading published accounts. No significant related-party transactions.	bbb
b+	Financial Transparency	Financial reporting is appropriate but with some failings (eg lack of interim or segment analysis).	bb

Source: Fitch Ratings

Relative Importance

All factors are deemed to be of importance in determining the rating but the relative importance indicator shows which factors are exerting greater or lesser influence on the final rating at the time of the analysis. The relative importance for each factor can be "Higher", "Moderate" or "Lower" and is reflected in the colour of the bar representing that particular factor on the graph: red, dark blue and light blue respectively:



Each rating factor assessment provides three key pieces of information:

- the overall factor assessment - depicted as a three-notch range across the rating scale;
- the relative importance of the factor in the credit analysis;
- the outlook for the factor using directional arrows (additional detail below).

Those selected as "higher" indicate the factors which are more significant in determining the overall rating. The Sector Navigator does not employ any explicit factor weightings, primarily because the importance or significance of risk elements can shift rapidly over time and/or differ markedly across issuers at the same time. Further, too much science applied to weightings would imply a mathematical scoring approach fundamentally at odds with the way in which our ratings are determined. For example, an issuer with extremely high leverage may see its Financial Structure and Financial Flexibility Key Factors input as "higher" and every other factor input as "lower" as they play a very limited role in the rating outcome.

Credit risk is asymmetric, and therefore positive outliers tend to attract lower importance than negative outliers. Credit risk is often affected by the weakest link in a chain rather than a neatly blended average, so high risk factors often attract significantly higher importance than moderate and lower risk factors.

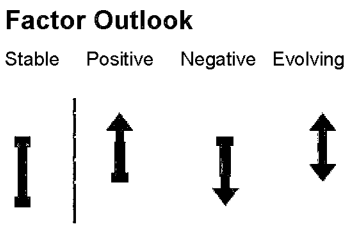
Relative to rating sensitivities quoted in rating research, changes to higher influence factors would typically drive rating changes and therefore tend to be closely aligned to rating sensitivities. There may, however, be instances where a higher-influence factor is considered very unlikely to change and may therefore be less prominent in the triggers for a potential rating change.

Similarly, a moderate influence factor may be significantly more likely to change and may therefore be more prominent in the rating sensitivities. The likelihood a specific factor could lead to a rating change will be a combination of the factor's absolute level, its relative importance and the speed at which it is changing.

Relative importance means relative to other rating factors for the same entity, not relative to other issuers. If peers are very similar in terms of metrics and business mode, it is likely the relative influence of the various factors will be similar. Issuers in the same peer group with differences in business and financial profiles will usually be mapped differently even if the rating is the same to reflect that different factors will play a greater or lesser role in the rating profile.

The Outlook of the Key Factor

An indication of the outlook for each factor is provided by using arrows to denote "Positive", "Negative", "Stable" or "Evolving" trends.



If the outlook for the rating of the issuer is "Positive" for example, one would expect at least one of the rating factors to show a "Positive" outlook. As the factors are assessed with a through-the-cycle perspective, most outlooks are expected to be set at "Stable", but especially for the faster-moving financial ratios, non-stable outlooks can still be justified to denote a clear expected directional trend for a particular factor over the next 12-24 months.

The assessment of quantitative financial metrics for an issuer against the reference metrics for its rating category will be made using the entity's financial profile under Fitch's rating case over the next one to two years rather than previous performance. However, if the projected improvement (deterioration) is viewed as particularly uncertain, the positioning of the assessment may be made based on the current year's level and reflect the projected improvement (deterioration) by a positive (negative) outlook for the factor.

For example, a leverage reduction based on yet-to-be-finalised asset sale may be reflected by assessing the Financial Structure Key Factor in line with the current credit metrics but with a positive outlook to show the expectation of improvement. If the asset sale is already complete, the assessment can be made on the basis of the expected lower leverage with a stable outlook.

Factors Common to All Sectors: Operating Environment

The OE reflects the wider context in which the rated issuer operates, irrespective of its sector. This includes the broad range of factors associated with country risk, which is mostly relevant for companies in emerging markets. The OE is a blend of Fitch's assessment of the Economic Environment, Financial Access, and Systemic Governance for the issuer. The OE does not include the impact of the issuer's country ceiling.

The assessment of the Economic Environment, Financial Market Development and Systemic Governance sub-factors described below is published for selected countries.

There is no formal application of an OE "discount" in the rating analysis, but the factors that compose an OE can explain why entities in weaker markets would be rated lower than similar entities with otherwise similar profiles, in more advanced markets.

As with governance, Fitch holds the OE to be an asymmetric consideration. Companies can both succeed and fail in the most hospitable environments, rendering that environment a neutral consideration, but a higher-risk environment can actively constrain a company's potential.

OE is typically not a consideration in advanced economies. These would be environments where the combined OE is in the 'a' category or higher, which in turn indicates:

- all three sub-factors would be scored at 'a' or above;
- two of the three sub-factors are 'aa' or 'a', and the third factor is higher than 'bb'.

The above combinations are the case in most developed markets, including the US, Western Europe and Developed Asia.

Impact of the OE on the Rating

OEs of 'bbb' would only suggest a limited drag upon companies in the 'A' or above rating categories.

Mid- to high 'bb' range OE would moderately impact issuers in the 'BBB' category and more significantly in the A category.

A 'bb-' OE would start to moderately shape credit profiles in the high sub-IG lower, low IG ranges as well and would have a more significant 2-notch impact for 'BBB+' and above ratings.

A 'b+' OE would be a drag on ratings in the BB category and have a more significant impact for IG issuers. A 'b' or 'b-' OE could also be a drag for ratings in the high B category.

The Economic Environment

The Economic Environment (EE) incorporates Fitch's views on key macro variables that may affect a corporate's fundamental credit strengths, such as the stage of economic development, economic growth expectations and the relative stability or volatility of the economy as a whole.

The EE for each country is assessed by taking the "Structural" percentile rank. This reflects the vulnerability of the economy to shocks, including the risks posed by the financial sector, political risk and governance factors. It is generated from the Sovereign Rating Model (see *Sovereign Rating Criteria*), and adjusted for any Structural Qualitative Overlay (QO) notching impact multiplied by 10. The resulting score is then converted into an EE using the table below:

SRM Scores

Adjusted SRM structural percentile score	Economic environment
>80	aa
>60-80	a
>40-60	bbb
>25-40	bb
>10	b
10 or below	ccc

Source: Fitch Ratings

For example, a country with a structural percentile rank of 45 and a QO notching impact of -1 would end up with an adjusted score of 35 (45-1*10), corresponding to an EE of "bb". In the absence of any QO notching impact, the EE of the country would be "bbb". Where the Structural Percentile Rank and accompanying QO are unavailable for a country, analysts can use the guidance in the *Operating Environment Summary Table* to assess the EE.

Issuers that operate in a single country will receive a factor equal to the country's EE. For issuers that operate in multiple countries, Fitch will take a blended view of the EE. The location of assets in weak economic environments can pull down the EE level of an issuer. For example, the likelihood of major disruption to the production process due to labour unrest is more likely in weak economies. This allows differentiation between two issuers selling in the same markets but with assets located in countries with significantly different levels of economic stability.

The EE level of an issuer can be assessed by looking at both the profiles of the countries where the economic value is created by the issuer, i.e. the destination of the issuer's products, and where its assets are located, i.e. where the products are made. The notion of economic value encompasses both revenue and profit, the relative importance of which will vary on a case-by-case basis. For example, a trading business generating high revenues but minimal profits may not be given much weight in the analysis. Conversely, a large but non-profitable division in the core business of an issuer is relevant, even if it is making little profit.

Issuer Economic Environment

	Economic environment level of the countries where the majority of the Issuer's assets are located		
Economic environment of countries where economic value is created	**bbb/above**	**bb**	**b/lower**
Widely diversified global footprint or more than 3/4 exposure to countries with 'aa' or 'a' Economic Environments.	aa	a	bbb
Diversified footprint with majority of countries benefiting from an Economic Environment of 'a'. Less than 25% exposure to countries with 'bb' or lower Economic Environment. Category applicable to sellers of commodities in world markets.	a	bbb	bb
Some diversification and more than 50% exposure to countries with an Economic Environment of 'bbb' or above. Less than 25% exposure on countries with 'b' Economic Environment.	bbb	bbb	bb
More than 50% exposure to countries with an economic environment of 'bb' or less. Less than 25% exposure on countries with a 'b' economic environment.	bb	bb	b
As above with limited diversification and/or more than 25% exposure on countries with 'b' Economic Environment.	bb	b	b
More than 50% exposure to countries with 'b' or lower Economic Environment.	b	b	b

Source: Fitch Ratings

Financial Access

An issuer's Financial Access (FA) is a combination of the strength of its local financial system (both banks and capital markets) as reflected in the Financial Market Development (FMD) level of the relevant country, of its own level of access to local funding and of its record and ability to access international financial markets and institutions on a sustainable basis.

An issuer with good local access but limited access to international funding gets the same input as the Financial Market Development level of its local market. The extent of the ability to tap international markets or banks on an unsecured basis defines how much the issuer can detach itself from the strength of its local financial market.

The FMD score of each country is assessed using Viability Ratings (VR), which represent the stand-alone profiles, excluding shareholder or sovereign support, of the banks in the country (see *Bank Rating Criteria*).

Where VRs are unavailable, Fitch will use the OE applicable to Financial Institutions in the relevant country as a proxy for the FMD. In any rare cases where none of the inputs above are available, analysts can use the guidance in the *Operating Environment Summary Table* to assess the FMD.

Issuer Financial Access

	Financial market development level of local market							
Issuer's funding characteristics.	**aaa or aa**	**a**	**bbb**	**bb**	**b**	**ccc**	**cc**	**c**
International blue-chip issuer with demonstrable access on an unsecured basis to top-tier cross-border banks and international financial markets at all points in the cycle.	aa	aa	aa	a	a	a	a	a
National blue chip with extensive relationships with domestic financial institutions or some access to top-tier cross-border banks and international financial markets. Access more vulnerable to sudden interruption than in the above category.	aa	aa	a	bbb	bb	b	ccc	cc
Issuer with strong local access but limited access to international funding.	aa	a	bbb	bb	b	ccc	cc	c
Issuer with average local access and very limited access to international funding.	a	bbb	bb	b	b	ccc	cc	c
Issuer with qualified local access.	bb	bb	b	b	b	ccc	cc	c

Source: Fitch Ratings

Systemic Governance

Each country's Systemic Governance level is based on Worldwide Governance Indicators published by the World Bank (see *Impact of Systemic Characteristics on Ratings* table below), accounting standards as well as the quality of the audit and market regulation. An issuer will generally be assessed based on the location of its headquarters.

We apply the following weightings to the World Bank governance indicators: 3% weight to the "Political Stability" indicator, 20% to "Government Effectiveness", 50% to "Rule of Law", 15% to "Control of Corruption", 2% to "Voice and Accountability" and 10% to the "Ease of Doing Business" percentile based on the World Bank's *Doing Business* report.

Poor individual governance at issuer level (even if typical for the country) would not be reflected in Systemic Governance but in the issuer-specific Management/Corporate Governance factor.

Impact of Systemic Characteristics on Ratings

1. Systemic characteristics neutral to ratings	**2. Systemic characteristics that may constrain ratings**	**3. Systemic characteristics that are likely to have a negative impact on ratings**
Countries with a systemic governance score of 'bbb' or above	Countries with a systemic governance score of 'bb'	Countries with a systemic governance score of 'b'
Systemic factors for financial information transparency	Systemic factors for financial information transparency:	Systemic factors for financial information transparency:
Accounting standards are set by, in, or in line with an independent standard setter (e.g. US GAAP, IFRS).	Local GAAP is developed by the government or regulator and differs significantly from international GAAP.	There is no requirement for auditor independence.
Audit regulation is transparent and robust (e.g. PCAOB).	The securities regulator is weak and/or ineffective.	Little or no securities regulation exists.
Securities regulation is investor/creditor-focused (e.g. SEC).		

Source: Fitch Ratings

Operating Environment Summary Table

	aaa	aa	a	bbb	bb	b	ccc
Economic environment	Highly stable and major advanced economy with very high degree of resilience to economic shocks.	Very stable and major advanced economy with high degree of resilience to economic shocks.	Stable and major advanced economy with a good degree of resilience to economic shocks.	Moderately stable economy which could be less advanced but with a fair degree of resilience to economic shocks.	Less stable and less advanced economy susceptible to adverse changes in domestic situation or international shocks.	Volatile and less advanced economy highly susceptible to adverse changes in domestic situation or international shocks.	Unstable economy highly susceptible to even moderate changes and in domestic or international economic situations.
Financial market development	Banking sector is highly developed and concentrated with very high barriers to entry. Highly advanced financial markets.	Banking sector is very developed and concentrated with high barriers to entry. Very advanced financial markets.	Banking sector is developed and concentrated with meaningful barriers to entry. Advanced financial markets.	Banking sector is less developed or diffuse with only moderate barriers to entry. Financial markets are developed but not deep.	Banking sector is diffuse with only limited barriers to entry. Financial markets are not fully developed.	Banking sector is very diffuse with no barrier to entry. Financial markets are less developed.	Banking sector is highly diffuse with no barrier to entry. Financial markets may be undeveloped.
Systemic governance	n.a.	Weighted average[a] of the World Bank's Worldwide Governance Indicators is in the top 20%.	Weighted average[a] of the World Bank's Worldwide Governance Indicators is in the top 30%.	Weighted average[a] of the World Bank's Worldwide Governance Indicators is in the top 50%.	Weighted average[a] of the World Bank's Worldwide Governance Indicators is in the top 60%.	Weighted average[a] of the world Bank's Worldwide Governance Indicators is in the bottom 40%.	n.a.

[a] The weighted average gives a 3% weight to the "Political Stability" indicator, 20% to "Government Effectiveness", 50% to "Rule of Law", 15% to "Control of Corruption", 2% to "Voice and Accountability" and 10% to the "Ease of Doing Business" percentile based on the World Bank's *Doing Business* Report
Source: Fitch Ratings, Worldwide Governance Indicators published by the World Bank

Operating Environment Inputs by Country

Country	Economic Environment	Financial Market Development	Systemic Governance
Australia	aa	a	aa
Hong Kong	a	a	aa
Japan	aa	a	aa
New Zealand	aa	a	aa
South Korea	a	a	aa
Singapore	aa	aa	aa
Taiwan	a	bbb	aa
China	bbb	bb	bbb
India	bbb	bb	bbb
Indonesia	bbb	bb	bb
Malaysia	a	bbb	a
Mongolia	b	b	bb
Philippines	bb	bb	bb
Sri Lanka	bb	b	bbb
Thailand	bbb	bbb	bbb
Vietnam	bb	b	bbb
Austria	aa	bbb	aa
Belgium	aa	a	aa
Cyprus	bb	b	a
Czech Republic	a	a	a
Denmark	aa	a	aa
Finland	aa	aa	aa
France	aa	a	aa
Germany	aa	a	aa
Greece	bbb	ccc	bbb
Iceland	a	aa	aa
Ireland	a	bbb	aa
Israel	a	bbb	aa
Italy	aa	bb	bbb
Luxembourg	aa	a	aa
Malta	a	bb	a
Netherlands	aa	a	aa
Norway	aa	a	aa
Portugal	a	bb	aa
Slovakia	a	bbb	a
Slovenia	a	bb	aa
Spain	a	bbb	a
Sweden	aa	aa	aa
Switzerland	aa	a	aa
United Kingdom	aa	a	aa
Angola	ccc	b	b
Armenia	bb	b	bbb
Azerbaijan	b	b	b
Bahrain	bb	bb	bbb
Belarus	bb	b	b
Bulgaria	bbb	bb	bbb
Croatia	bbb	bb	bbb

Operating Environment Inputs by Country

Country	Economic Environment	Financial Market Development	Systemic Governance
Egypt	bb	b	b
Georgia	bb	bb	bbb
Hungary	a	bb	bbb
Kazakhstan	bb	bb	bb
Kenya	b	b	b
Kuwait	bbb	bbb	bbb
Lebanon	ccc	b	b
Morocco	bb	bb	bb
Nigeria	b	b	b
Oman	bbb	bb	bbb
Poland	a	bbb	bbb
Romania	bbb	bb	bbb
Russia	bb	bb	b
Saudi Arabia	a	bbb	bbb
Serbia	bbb	bb	bbb
South Africa	bbb	bb	bbb
Tunisia	bb	b	bbb
Turkey	bb	b	bb
Ukraine	b	b	b
Brazil	bbb	bb	bb
Chile	a	a	aa
Colombia	bbb	bbb	bb
Mexico	bbb	bbb	b
Panama	bbb	bbb	bbb
Peru	bbb	bbb	bb
Uruguay	a	bb	a
Argentina	bb	cc	bb
Costa Rica	bb	b	a
Dominican Republic	bb	b	bb
Ecuador	b	cc	b
El Salvador	b	b	b
Guatemala	b	bb	b
Jamaica	bb	b	bbb
Paraguay	bb	b	b
United States of America	aa	a	aa
Canada	aa	aa	aa
Latvia	a	a	a
Lithuania	a	a	aa
Iraq	ccc	b	b
Abu Dhabi	a	bbb	a
Uzbekistan	b	b	b

Source: Fitch Ratings

Factors Common to All Sectors: Management and Corporate Governance

The Management and Corporate Governance Factor is composed of four sub-factors: Management Strategy, Corporate Governance, Group Structure and Financial Transparency.

Management and Corporate Governance: Sub-Factors

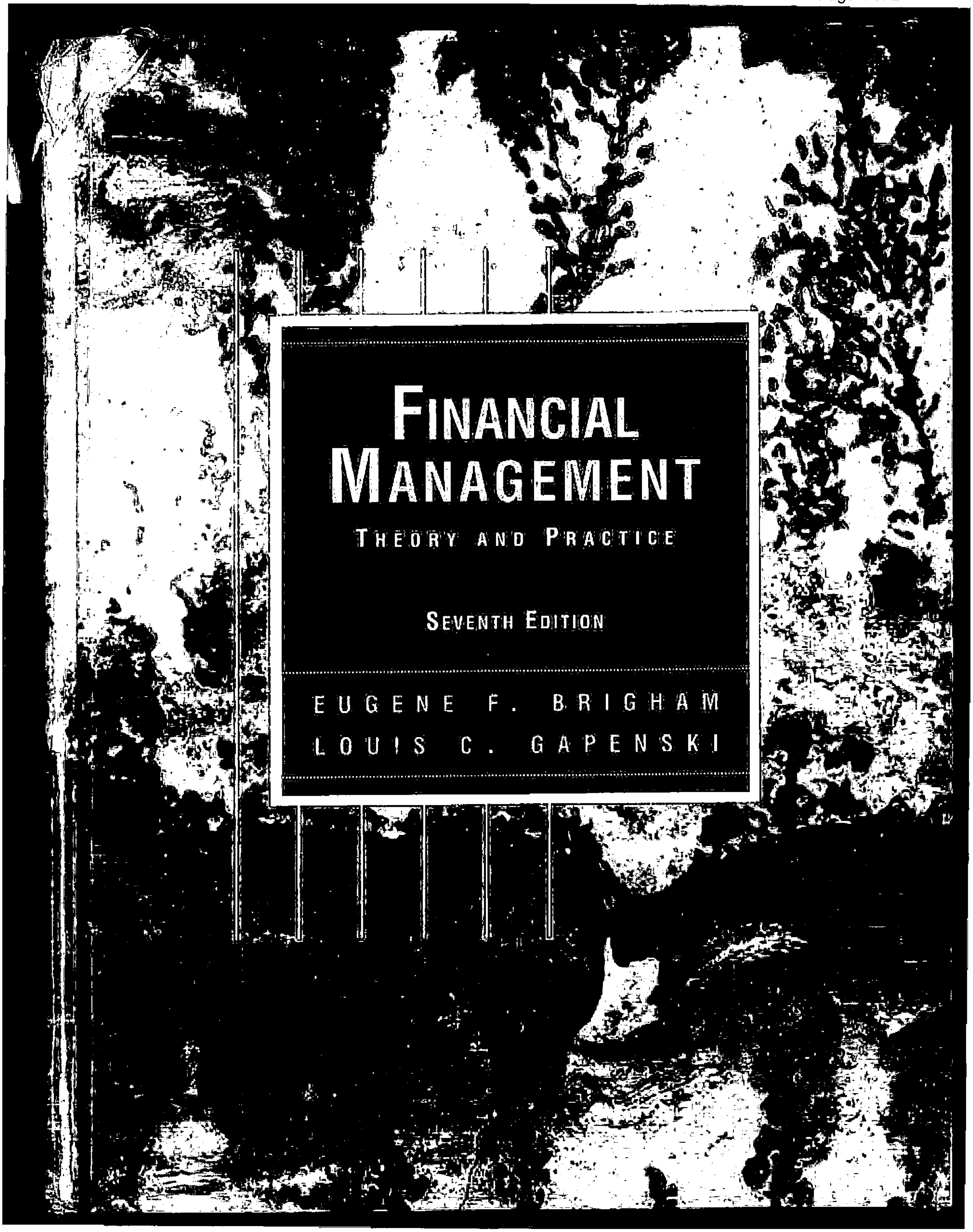
	Management strategy	Governance structure	Group structure	Financial transparency
'aa' category	Coherent strategy and very strong record in implementation.	No record of governance failing. Experienced board exercising effective checks and balances to management. No ownership concentration.	Transparent group structure.	Financial reporting of exceptionally high standards.
'a' category	Coherent strategy and good record in implementation.	Experienced board exercising effective checks and balances. Ownership can be concentrated among several shareholders.	Group structure has some complexity but mitigated by transparent reporting.	High-quality and timely financial reporting.
'bbb' category	Strategy may include opportunistic elements but soundly implemented.	Good governance record but board effectiveness/independence less obvious. No evidence of abuse of power even with ownership concentration.	Some group complexity leading to somewhat less transparent accounting statements. No significant related-party transactions.	Good-quality reporting without significant failings. Consistent with the average of listed companies in major exchanges.
'bb' category	Strategy generally coherent but some evidence of weak implementation.	Board effectiveness questionable, with few independent directors. "Key man" risk from dominant CEO or shareholder.	Complex group structure or non-transparent ownership structure. Related-party transactions exist but with reasonable economic rationale.	Financial reporting is appropriate but with some failings (e.g. lack of interim or segment analysis).
'b' category	Strategy lacking cohesion and/or some weakness in implementation.	Poor governance structure. Ineffective board with no or only token independent directors. Decision-making in the hands of one individual.	Highly complex group with large and opaque related-party transactions or opaque ownership structure.	Defective financial reporting. Aggressive accounting policies.
'ccc' category	Strategy visibly failing, major transformation required to avoid company failure, with no better than even chance of success.	Record of failed governance practices. Instability in board membership. Dysfunctional decision-making.	Group structure sufficiently complex or compromised (e.g. disputed ownership) to materially impair strategic and financial progress.	Sustained absence of financial reporting for reasons other than force majeure, change of auditor or corporate restructuring.

Source: Fitch Ratings

Sector-Specific Factors

Please refer to the relevant Sector Navigator for the sector-specific factors via the link below:

Sector Navigators - Addendum to the Corporate Rating Criteria


FINANCIAL MANAGEMENT
THEORY AND PRACTICE
SEVENTH EDITION
EUGENE F. BRIGHAM
LOUIS C. GAPENSKI

by interest payments; preferred stockholders are compensated by fixed dividend payments; and the firm's remaining income belongs to its common stockholders and serves to "pay the rent" on stockholders' capital. Management may either pay out earnings in the form of dividends or retain earnings for reinvestment in the business. If part of the earnings is retained, an *opportunity cost* is incurred: Stockholders could have received those earnings as dividends and then invested that money in stocks, bonds, real estate, and so on. *Thus, the firm should earn on its retained earnings at least as much as its stockholders themselves could earn on alternative investments of equivalent risk.*

What rate of return can stockholders expect to earn on other investments of equivalent risk? The answer is k_s, because they can earn that return simply by buying the stock of the firm in question or that of a similar firm. Therefore, if our firm cannot invest retained earnings and earn at least k_s, then it should pay those earnings to its stockholders so that they can invest the money themselves in assets that do provide a return of k_s.

Whereas debt and preferred stocks are contractual obligations which have easily determined costs, it is not at all easy to estimate k_s. However, three methods can be used: (1) the Capital Asset Pricing Model (CAPM), (2) the discounted cash flow (DCF) model, and (3) the bond-yield-plus-risk-premium approach. These methods should not be regarded as mutually exclusive—no one dominates the others, and all are subject to error when used in practice. Therefore, when faced with the task of estimating a company's cost of equity, we generally use all three methods and then choose among them on the basis of our confidence in the data used for each in the specific case at hand.

SELF-TEST QUESTIONS

What are the two types of common equity whose costs must be estimated?

Explain why there is a cost for retained earnings.

THE CAPM APPROACH

As we saw in Chapter 5, the Capital Asset Pricing Model is based on some unrealistic assumptions, and it cannot be empirically verified. Still, because of its logical appeal, the CAPM is often used in the cost of capital estimation process.

Under the CAPM we assume that the cost of equity is equal to the risk-free rate plus a risk premium that is based on the stock's beta coefficient and the market risk premium as set forth in the Security Market Line (SML) equation:

$$
\begin{aligned}
k_s &= \text{Risk-free rate} + \text{Risk premium} \\
&= \quad k_{RF} \quad + (k_M - k_{RF})b_i.
\end{aligned}
$$

Given estimates of (1) the risk-free rate, k_{RF}, (2) the firm's beta, b_i, and (3) the required rate of return on the market, k_M, we can estimate the required rate of

VALUATION

MEASURING AND MANAGING THE VALUE OF COMPANIES

THIRD EDITION

McKinsey & Company, Inc.
Tom Copeland
Tim Koller
Jack Murrin

JOHN WILEY & SONS, INC.
New York • Chichester • Weinheim • Brisbane • Singapore • Toronto

$$k_p = \frac{\text{div}}{P}$$

where k_p = The cost of preferred stock
div = The promised dividend on the preferred stock
P = The market price of the preferred stock

If the current market price is not available, use yields on similar-quality issues as an estimate. For a fixed-life or callable preferred stock issue, estimate the opportunity cost by using the same approach as for a comparable debt instrument. In other words, estimate the yield that equates the expected stream of payments with the market value. For convertible preferred issues, option-pricing approaches are necessary.

STEP 3: ESTIMATE THE COST OF EQUITY FINANCING

The opportunity cost of equity financing is the most difficult to estimate because we can't directly observe it in the market. We recommend using the capital asset pricing model (CAPM) or the arbitrage pricing model (APM). Both approaches have problems associated with their application, including measurement difficulty. Many other approaches to estimating the cost of equity are conceptually flawed. The dividend yield model (defined as the dividend per share divided by the stock price) and the earnings-to-price ratio model substantially understate the cost of equity by ignoring expected growth.

The Capital Asset Pricing Model

The CAPM is discussed at length in all modern finance texts (for example, see Brealey and Myers, 1999, or Copeland and Weston, 1992).[6] These detailed discussions will not be reproduced here. (In this section, we assume that you are generally familiar with the principles that underlie the approach.) The CAPM postulates that the opportunity cost of equity is equal to the return on risk-free securities plus the company's systematic risk (beta) multiplied by the market price of risk (market risk premium). The equation for the cost of equity (k_s) is as follows:

[6] T. Copeland and J. Weston, *Financial Theory and Corporate Policy*, 3rd ed. (Reading, MA: Addison-Wesley, 1992); and R. Brealey and S. Myers, *Principles of Corporate Finance*, 5th ed. (New York: McGraw-Hill, 1999).

Supreme Court of the United States
BLUEFIELD WATERWORKS & IMPROVEMENT CO.
v.
PUBLIC SERVICE COMMISSION OF WEST VIRGINIA et al.
No. 256.

Argued January 22, 1923.
Decided June 11, 1923.

In Error to the Supreme Court of Appeals of West Virginia.

Proceedings by the Bluefield Waterworks & Improvement Company against the Public Service Commission of the State of West Virginia and others to suspend and set aside an order of the Commission fixing rates. From a judgment of the Supreme Court of West Virginia, dismissing the petition, and denying the relief (89 W. Va. 736, 110 S. E. 205), the Waterworks Company bring error. Reversed.

West Headnotes

Constitutional Law 92 298(1.5)

92 Constitutional Law
92XII Due Process of Law
92k298 Regulation of Charges and Prices
92k298(1.5) k. Public Utilities in General. Most Cited Cases
Rates which are not sufficient to yield a reasonable return on the value of the property used in public service at the time it is being so used to render the service are unjust, unreasonable, and confiscatory, and their enforcement deprives the public utility company of its property, in violation of the Fourteenth Amendment of the Constitution.

Constitutional Law 92 298(3)

92 Constitutional Law
92XII Due Process of Law
92k298 Regulation of Charges and Prices
92k298(3) k. Water and Irrigation Companies. Most Cited Cases
Under the due process clause of the Fourteenth Amendment of the Constitution, U.S.C.A., a waterworks company is entitled to the independent judgment of the court as to both law and facts, where the question is whether the rates fixed by a public service commission are confiscatory.

Waters and Water Courses 405 203(10)

405 Waters and Water Courses
405IX Public Water Supply
405IX(A) Domestic and Municipal Purposes
405k203 Water Rents and Other Charges
405k203(10) k. Reasonableness of Charges. Most Cited Cases
It was error for a state public service commission, in arriving at the value of the property used in public service, for the purpose of fixing the rates, to fail to give proper weight to the greatly increased cost of construction since the war.

Waters and Water Courses 405 203(10)

405 Waters and Water Courses
405IX Public Water Supply
405IX(A) Domestic and Municipal Purposes
405k203 Water Rents and Other Charges
405k203(10) k. Reasonableness of Charges. Most Cited Cases
A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties, but it has no constitutional right to such profits as are realized or anticipated in highly profitable enterprises or speculative ventures.

Waters and Water Courses 405 203(10)

405 Waters and Water Courses
405IX Public Water Supply
405IX(A) Domestic and Municipal Purposes
405k203 Water Rents and Other Charges
405k203(10) k. Reasonableness

of Charges. Most Cited Cases
Since the investors take into account the result of past operations as well as present rates in determining whether they will invest, a waterworks company which had been earning a low rate of returns through a long period up to the time of the inquiry is entitled to return of more than 6 per cent. on the value of its property used in the public service, in order to justly compensate it for the use of its property.

Federal Courts 170B 504.1

170B Federal Courts
170BVII Supreme Court
170BVII(E) Review of Decisions of State Courts
170Bk504 Nature of Decisions or Questions Involved
170Bk504.1 k. In General. Most Cited Cases
(Formerly 106k394(6))
A proceeding in a state court attacking an order of a public service commission fixing rates, on the ground that the rates were confiscatory and the order void under the federal Constitution, is one where there is drawn in question the validity of authority exercised under the state, on the ground of repugnancy to the federal Constitution, and therefore is reviewable by writ of error.

****675 *680** Messrs. Alfred G. Fox and Jos. M. Sanders, both of Bluefield, W. Va., for plaintiff in error.
Mr. Russell S. Ritz, of Bluefield, W. Va., for defendants in error.

***683** Mr. Justice BUTLER delivered the opinion of the Court.
Plaintiff in error is a corporation furnishing water to the city of Bluefield, W. Va., ****676** and its inhabitants. September 27, 1920, the Public Service Commission of the state, being authorized by statute to fix just and reasonable rates, made its order prescribing rates. In accordance with the laws of the state (section 16, c. 15-O, Code of West Virginia [sec. 651]), the company instituted proceedings in the Supreme Court of Appeals to suspend and set aside the order. The petition alleges that the order is repugnant to the Fourteenth Amendment, and deprives the company of its property without just compensation and without due process of law, and denies it equal protection of the laws. A final judgment was entered, denying the company relief and dismissing its petition. The case is here on writ of error.

[1] 1. The city moves to dismiss the writ of error for the reason, as it asserts, that there was not drawn in question the validity of a statute or an authority exercised under the state, on the ground of repugnancy to the federal Constitution.

The validity of the order prescribing the rates was directly challenged on constitutional grounds, and it was held valid by the highest court of the state. The prescribing of rates is a legislative act. The commission is an instrumentality of the state, exercising delegated powers. Its order is of the same force as would be a like enactment by the Legislature. If, as alleged, the prescribed rates are confiscatory, the order is void. Plaintiff in error is entitled to bring the case here on writ of error and to have that question decided by this court. The motion to dismiss will be denied. See ***684**Oklahoma Natural Gas Co. v. Russell, 261 U. S. 290, 43 Sup. Ct. 353, 67 L. Ed. 659, decided March 5, 1923, and cases cited; also Ohio Valley Co. v. Ben Avon Borough, 253 U. S. 287, 40 Sup. Ct. 527, 64 L. Ed. 908.

2. The commission fixed $460,000 as the amount on which the company is entitled to a return. It found that under existing rates, assuming some increase of business, gross earnings for 1921 would be $80,000 and operating expenses $53,000 leaving $27,000, the equivalent of 5.87 per cent., or 3.87 per cent. after deducting 2 per cent. allowed for depreciation. It held existing rates insufficient to the extent of 10,000. Its order allowed the company to add 16 per cent. to all bills, excepting those for public and private fire protection. The total of the bills so to be increased amounted to $64,000; that is, 80 per cent. of the revenue was authorized to be increased 16 per cent., equal to an increase of 12.8 per cent. on the total, amounting to $10,240.

As to value: The company claims that the value of the property is greatly in excess of $460,000. Reference to the evidence is necessary. There was submitted to the commission evidence of value which it summarized substantially as follows:

a. Estimate by company's engineer

	on. basis of reproduction new, less. depreciation, at prewar prices.	$ 624,548 00
b.	Estimate by company's engineer on. basis of reproduction new, less. depreciation, at 1920 prices.	1,194,663 00
c.	Testimony of company's engineer. fixing present fair value for rate. making purposes.	900,000 00
d.	Estimate by commissioner's engineer on. basis of reproduction new, less. depreciation at 1915 prices, plus. additions since December 31, 1915, at. actual cost, excluding Bluefield. Valley waterworks, water rights,. and going value.	397,964 38
e.	Report of commission's statistician. showing investment cost less. depreciation.	365,445 13
f.	Commission's valuation, as fixed in. case No. 368 ($360,000), plus gross. additions to capital since made. ($92,520.53).	452,520 53

***685** It was shown that the prices prevailing in 1920 were nearly double those in 1915 and pre-war time. The company did not claim value as high as its estimate of cost of construction in 1920. Its valuation engineer testified that in his opinion the value of the property was $900,000-a figure between the cost of construction in 1920, less depreciation, and the cost of construction in 1915 and before the war, less depreciation.

The commission's application of the evidence may be stated briefly as follows:

As to ‘a,’ supra: The commission deducted $204,000 from the estimate (details printed in the margin), FN1 leaving approximately $421,000, which it contrasted with the estimate of its own engineer, $397,964.38 (see ‘d,’ supra). It found that there should be included $25,000 for the Bluefield Valley waterworks plant in Virginia, 10 per cent. for going value, and $10,000 for working capital. If these be added to $421,000, there results $500,600. This may be compared with the commission's final figure, $460,000.

FN1

Difference in depreciation allowed.	$ 49,000
Preliminary organization and development. cost.	14,500
Bluefield Valley waterworks plant.	25,000
Water rights.	50,000
Excess overhead costs.	39,000
Paving over mains.	28,500
	$204,000

***686** As to 'b' and 'c,' supra: These were given no weight by the commission in arriving at its final figure, $460,000. It said:

'Applicant's plant was originally constructed more than twenty years ago, and has been added to from time to time as the progress and development of the community required. For this reason, it would be unfair to its consumers to use as a basis for present fair value the abnormal prices prevailing during the recent war period; but, when, as in this case, a part of the plant has been constructed or added to during that period, in fairness to the applicant, consideration must be given to the cost of such expenditures made to meet the demands of the public.'

****677** As to 'd,' supra: The commission, taking $400,000 (round figures), added $25,000 for Bluefield Valley waterworks plant in Virginia, 10 per cent. for going value, and $10,000 for working capital, making $477,500. This may be compared with its final figure, $460,000.

As to 'e,' supra: The commission, on the report of its statistician, found gross investment to be $500,402.53. Its engineer, applying the straight line method, found 19 per cent. depreciation. It applied 81 per cent. to gross investment and added 10 per cent. for going value and $10,000 for working capital, producing $455,500. FN2 This may be compared with its final figure, $460,000.

FN2 As to 'e': $365,445.13 represents investment cost less depreciation. The gross investment was found to be $500,402.53, indicating a deduction on account of depreciation of $134,957.40, about 27 per cent., as against 19 per cent. found by the commission's engineer.

As to 'f,' supra: It is necessary briefly to explain how this figure, $452,520.53, was arrived at. Case No. 368 was a proceeding initiated by the application of the company for higher rates, April 24, 1915. The commission made a valuation as of January 1, 1915. There were presented two estimates of reproduction cost less depreciation, one by a valuation engineer engaged by the company, ***687** and the other by a valuation engineer engaged by the city, both 'using the same method.' An inventory made by the company's engineer was accepted as correct by the city and by the commission. The method 'was that generally employed by courts and commissions in arriving at the value of public utility properties under this method.' and in both estimates 'five year average unit prices' were applied. The estimate of the company's engineer was $540,000 and of the city's engineer, $392,000. The principal differences as given by the commission are shown in the margin. FN3 The commission disregarded both estimates and arrived at $360,000. It held that the best basis of valuation was the net investment, i. e., the total cost of the property less depreciation. It said:

'The books of the company show a total gross investment, since its organization, of $407,882, and that there has been charged off for depreciation from year to year the total sum of $83,445, leaving a net investment of

FN3

		Company Engineer.	City Engineer.
1.	Preliminary costs.	$14,455	$1,000
2.	Water rights.	50,000	Nothing
3.	Cutting pavements over. mains.	27,744	233
4.	Pipe lines from gravity. springs.	22,072	15,442
5.	Laying cast iron street. mains.	19,252	15,212
6.	Reproducing Ada springs.	18,558	13,027
7.	Superintendence and. engineering.	20,515	13,621
8.	General contingent cost.	16,415	5,448
		$189,011	$63,983

$324,427. * * * From an examination of the books * * * it appears that the records of the company have been remarkably well kept and preserved. It therefore seems that, when a plant is developed under these conditions, the net investment, which, of course, means the total gross investment less depreciation, is the very best basis of valuation for rate making purposes and that the other methods above referred to should ***688** be used only when it is impossible to arrive at the true investment. Therefore, after making due allowance for capital necessary for the conduct of the business and considering the plant as a going concern, it is the opinion of the commission that the fair value for the purpose of determining reasonable and just rates in this case of the property of the applicant company, used by it in the public service of supplying water to the city of Bluefield and its citizens, is the sum of $360,000, which sum is hereby fixed and determined by the commission to be the fair present value for the said purpose of determining the reasonable and just rates in this case.'

In its report in No. 368, the commission did not indicate the amounts respectively allowed for going value or working capital. If 10 per cent. be added for the former, and $10,000 for the latter (as fixed by the commission in the present case), there is produced $366,870, to be compared with $360,000, found by the commission in its valuation as of January 1, 1915. To this it added $92,520.53, expended since, producing $452,520.53. This may be compared with its final figure, $460,000.

The state Supreme Court of Appeals holds that the valuing of the property of a public utility corporation and prescribing rates are purely legislative acts, not subject to judicial review, except in so far as may be necessary to determine whether such rates are void on constitutional or other grounds, and that findings of fact by the commission based on evidence to support them will not be reviewed by the court. City of Bluefield v. Waterworks, 81 W. Va. 201, 204, 94 S. E. 121; Coal & Coke Co. v. Public Service Commission, 84 W. Va. 662, 678, 100 S. E. 557, 7 A. L. R. 108; Charleston v. Public Service Commission, 86 W. Va. 536, 103 S. E. 673.

In this case (89 W. Va. 736, 738, 110 S. E. 205, 206) it said:
'From the written opinion of the commission we find that it ascertained the value of the petitioner's property for rate making [then quoting the commission] 'after ***689** maturely and carefully considering the various methods presented for the ascertainment of fair value and giving such weight as seems proper to every element involved and all the facts and circumstances disclosed by the record.''

[2] [3] The record clearly shows that the commission, in arriving at its final figure, did not accord proper, if any, weight to the greatly enhanced costs of construction in 1920 over those prevailing about 1915 and before the war, as established by uncontradicted ****678** evidence; and the company's detailed estimated cost of reproduction new, less depreciation, at 1920 prices, appears to have been wholly disregarded. This was erroneous. Missouri ex rel. Southwestern Bell Telephone Co. v. Public Service Commission of Missouri, 262 U. S. 276, 43 Sup. Ct. 544, 67 L. Ed. 981, decided May 21, 1923. Plaintiff in error is entitled under the due process clause of the Fourteenth Amendment to the independent judgment of the court as to both law and facts. Ohio Valley Co. v. Ben Avon Borough, 253 U. S. 287, 289, 40 Sup. Ct. 527, 64 L. Ed. 908, and cases cited.

We quote further from the court's opinion (89 W. Va. 739, 740, 110 S. E. 206):
'In our opinion the commission was justified by the law and by the facts in finding as a basis for rate making the sum of $460,000.00. * * * In our case of Coal & Coke Ry. Co. v. Conley, 67 W. Va. 129, it is said: 'It seems to be generally held that, in the absence of peculiar and extraordinary conditions, such as a more costly plant than the public service of the community requires, or the erection of a plant at an actual, though extravagant, cost, or the purchase of one at an exorbitant or inflated price, the actual amount of money invested is to be taken as the basis, and upon this a return must be allowed equivalent to that which is ordinarily received in the locality in which the business is done, upon capital invested in similar enterprises. In addition to this, consideration must be given to the nature of the investment, a higher rate ***690** being regarded as justified by the risk incident to a hazardous investment.'
'That the original cost considered in connection with the history and growth of the utility and the value of the services rendered constitute the principal elements to be considered in connection with rate making, seems to be supported by nearly all the authorities.'

[4] The question in the case is whether the rates prescribed in the commission's order are confiscatory and therefore beyond legislative power. Rates which are not sufficient to yield a reasonable return on the value of the property used at the time it is being used to render the service are unjust, unreasonable and confiscatory, and their enforcement deprives the public utility company of its property in violation of the Fourteenth Amendment. This is so well settled by numerous decisions of this court that citation of the cases is scarcely necessary:

'What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience.' Smyth v. Ames (1898) 169 U. S. 467, 547, 18 Sup. Ct. 418, 434 (42 L. Ed. 819).
'There must be a fair return upon the reasonable value of the property at the time it is being used for the public. * * * And we concur with the court below in holding that the value of the property is to be determined as of the time when the inquiry is made regarding the rates. If the property, which legally enters into the consideration of the question of rates, has increased in value since it was acquired, the company is entitled to the benefit of such increase.' Willcox v. Consolidated Gas Co. (1909) 212 U. S. 19, 41, 52, 29 Sup. Ct. 192, 200 (53 L. Ed. 382, 15 Ann. Cas. 1034, 48 L. R. A. [N. S.] 1134).
'The ascertainment of that value is not controlled by artificial rules. It is not a matter of formulas, but there must be a reasonable judgment having its basis in a proper consideration of all relevant facts.' Minnesota Rate Cases (1913) 230 U. S. 352, 434, 33 Sup. Ct. 729, 754 (57 L. Ed. 1511, 48 L. R. A. [N. S.] 1151, Ann. Cas. 1916A, 18).
***691** 'And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property.' Smyth v. Ames, 169 U. S., 546, 547, 18 Sup. Ct. 434, 42 L. Ed. 819.
'* * * The making of a just return for the use of the property involves the recognition of its fair value if it be more than its cost. The property is held in private ownership and it is that property, and not the original cost of it, of which the owner may not be deprived without due process of law.'

Minnesota Rate Cases, 230 U. S. 454, 33 Sup. Ct. 762, 57 L. Ed. 1511, 48 L. R. A. (N. S.) 1151, Ann. Cas. 1916A, 18.

In Missouri ex rel. Southwestern Bell Telephone Co., v. Public Service Commission of Missouri, supra, applying the principles of the cases above cited and others, this court said:
'Obviously, the commission undertook to value the property without according any weight to the greatly enhanced costs of material, labor, supplies, etc., over those prevailing in 1913, 1914, and 1916. As matter of common knowledge, these increases were large. Competent witnesses estimated them as 45 to 50 per centum. * * * It is impossible to ascertain what will amount to a fair return upon properties devoted to public service, without giving consideration to the cost of labor, supplies, etc., at the time the investigation is made. An honest and intelligent forecast of probable future values, made upon a view of all the relevant circumstances, is essential. If the highly important element of present costs is wholly disregarded, such a forecast becomes impossible. Estimates for to-morrow cannot ignore prices of to-day.'

[5] ***692** It is clear that the court also failed to give proper consideration to the higher cost of construction in 1920 over that in 1915 and before the war, and failed to give weight to cost of reproduction less depreciation on the basis of 1920 prices, or to the testimony of the company's valuation engineer, based on present and past costs of construction, that the property in his opinion, was worth $900,000. The final figure, $460,000, was arrived ****679** at substantially on the basis of actual cost, less depreciation, plus 10 per cent. for going value and $10,000 for working capital. This resulted in a valuation considerably and materially less than would have been reached by a fair and just consideration of all the facts. The valuation cannot be sustained. Other objections to the valuation need not be considered.

3. Rate of return: The state commission found that the company's net annual income should be approximately $37,000, in order to enable it to earn 8 per cent. for return and depreciation upon the value of its property as fixed by it. Deducting 2 per cent. for depreciation, there remains 6 per cent. on $460,000, amounting to $27,600 for return. This was approved by the state court.

[6] The company contends that the rate of return is too low and confiscatory. What annual rate will constitute just compensation depeds upon many circumstances, and must be determined by the exercise of a fair and enlightened judgment, having regard to all relevant facts. A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding, risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in ***693** highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A

rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally.

In 1909, this court, in Willcox v. Consolidated Gas Co., 212 U. S. 19, 48-50, 29 Sup. Ct. 192, 53 L. Ed. 382, 15 Ann. Cas. 1034, 48 L. R. A. (N. S.) 1134, held that the question whether a rate yields such a return as not to be confiscatory depends upon circumstances, locality and risk, and that no proper rate can be established for all cases; and that, under the circumstances of that case, 6 per cent. was a fair return on the value of the property employed in supplying gas to the city of New York, and that a rate yielding that return was not confiscatory. In that case the investment was held to be safe, returns certain and risk reduced almost to a minimum-as nearly a safe and secure investment as could be imagined in regard to any private manufacturing enterprise.

In 1912, in Cedar Rapids Gas Co. v. Cedar Rapids, 223 U. S. 655, 670, 32 Sup. Ct. 389, 56 L. Ed. 594, this court declined to reverse the state court where the value of the plant considerably exceeded its cost, and the estimated return was over 6 per cent.

In 1915, in Des Moines Gas Co. v. Des Moines, 238 U. S. 153, 172, 35 Sup. Ct. 811, 59 L. Ed. 1244, this court declined to reverse the United States District Court in refusing an injunction upon the conclusion reached that a return of 6 per cent. per annum upon the value would not be confiscatory.

In 1919, this court in Lincoln Gas Co. v. Lincoln, 250 U. S. 256, 268, 39 Sup. Ct. 454, 458 (63 L. Ed. 968), declined on the facts of that case to approve a finding that no rate yielding as much as 6 per cent. ***694** on the invested capital could be regarded as confiscatory. Speaking for the court, Mr. Justice Pitney said:
'It is a matter of common knowledge that, owing principally to the World War, the costs of labor and supplies of every kind have greatly advanced since the ordinance was adopted, and largely since this cause was last heard in the court below. And it is equally well known that annual returns upon capital and enterprise the world over have materially increased, so that what would have been a proper rate of return for capital invested in gas plants and similar public utilities a few years ago furnishes no safe criterion for the present or for the future.'

In 1921, in Brush Electric Co. v. Galveston, the United States District Court held 8 per cent. a fair rate of return. FN4

FN4 This case was affirmed by this court June 4, 1923, 262 U. S. 443, 43 Sup. Ct. 606, 67 L. Ed. 1076.

In January, 1923, in City of Minneapolis v. Rand, the Circuit Court of Appeals of the Eighth Circuit (285 Fed. 818, 830) sustained, as against the attack of the city on the ground that it was excessive, 7 1/2 per cent., found by a special master and approved by the District Court as a fair and reasonable return on the capital investment-the value of the property.

[7] Investors take into account the result of past operations, especially in recent years, when determining the terms upon which they will invest in such an undertaking. Low, uncertain, or irregular income makes for low prices for the securities of the utility and higher rates of interest to be demanded by investors. The fact that the company may not insist as a matter of constitutional right that past losses be made up by rates to be applied in the present and future tends to weaken credit, and the fact that the utility is protected against being compelled to serve for confiscatory rates tends to support it. In ***695** this case the record shows that the rate of return has been low through a long period up to the time of the inquiry by the commission here involved. For example, the average rate of return on the total cost of the property from 1895 to 1915, inclusive, was less than 5 per cent.; from 1911 to 1915, inclusive, about 4.4 per cent., without allowance for depreciation. In 1919 the net operating income was approximately $24,700, leaving $15,500, approximately, or 3.4 per cent. on $460,000 fixed by the commission, after deducting 2 per cent. for depreciation. In 1920, the net operating income was approximately $25,465, leaving $16,265 for return, after allowing for depreciation. Under the facts and circumstances indicated by the record, we think that a rate of return of 6 per cent. upon the value of the property is substantially too low to constitute just compensation for the use of the property employed to render the service.

The judgment of the Supreme Court of Appeals of West Virginia is reversed.

Mr. Justice BRANDEIS concurs in the judgment of reversal, for the reasons stated by him in Missouri ex rel. Southwestern Bell Telephone Co. v. Public Service Commission of Missouri, supra.
U.S. 1923
Bluefield Waterworks & Imp. Co. v. Public Service Commission of W. Va.
P.U.R. 1923D 11, 262 U.S. 679, 43 S.Ct. 675, 67 L.Ed. 1176

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Supreme Court of the United States
FEDERAL POWER COMMISSION et al.
v.
HOPE NATURAL GAS CO.
CITY OF CLEVELAND
v.
SAME.
Nos. 34 and 35.

Argued Oct. 20, 21, 1943.
Decided Jan. 3, 1944.

Separate proceedings before the Federal Power Commission by such Commission, by the City of Cleveland and the City of Akron, and by Pennsylvania Public Utility Commission wherein the State of West Virginia and its Public Service Commission were permitted to intervene concerning rates charged by Hope Natural Gas Company which were consolidated for hearing. An order fixing rates was reversed and remanded with directions by the Circuit Court of Appeals, 134 F.2d 287, and Federal Power Commission, City of Akron and Pennsylvania Public Utility Commission in one case and the City of Cleveland in another bring certiorari.

Reversed.

Mr. Justice REED, Mr. Justice FRANKFURTER and Mr. Justice JACKSON, dissenting.

On Writs of Certiorari to the United States Circuit Court of Appeals for the Fourth Circuit.

West Headnotes

[1] **Public Utilities 317A 120**

317A Public Utilities
317AII Regulation
317Ak119 Regulation of Charges
317Ak120 k. Nature and Extent in General. Most Cited Cases
(Formerly 317Ak7.1, 317Ak7)
Rate-making is only one species of price-fixing which, like other applications of the police power, may reduce the value of the property regulated, but that does not render the regulation invalid.

[2] **Public Utilities 317A 123**

317A Public Utilities
317AII Regulation
317Ak119 Regulation of Charges
317Ak123 k. Reasonableness of Charges in General. Most Cited Cases
(Formerly 317Ak7.4, 317Ak7)
Rates cannot be made to depend upon fair value, which is the end product of the process of rate-making and not the starting point, when the value of the going enterprise depends on earnings under whatever rates may be anticipated.

[3] **Gas 190 14.3(2)**

190 Gas
190k14 Charges
190k14.3 Administrative Regulation
190k14.3(2) k. Federal Power Commission. Most Cited Cases
(Formerly 190k14(1))
The rate-making function of the Federal Power Commission under the Natural Gas Act involves the making of pragmatic adjustments, and the Commission is not bound to the use of any single formula or combination of formulae in determining rates. Natural Gas Act, § § 4(a), 5(a), 6, 15 U.S.C.A. § § 717c(a), 717d(a), 717e.

[4] **Gas 190 14.5(6)**

190 Gas
190k14 Charges
190k14.5 Judicial Review and Enforcement of Regulations
190k14.5(6) k. Scope of Review and Trial De Novo. Most Cited Cases
(Formerly 190k14(1))
When order of Federal Power Commission fixing natural gas rates is challenged in the courts, the question is whether order viewed in its entirety meets the requirements of the Natural Gas Act. Natural Gas Act, § § 4(a), 5(a), 6, 19(b), 15 U.S.C.A. § § 717c(a), 717d(a), 717e, 717r(b).

[5] **Gas 190 14.4(1)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges

190k14.4(1) k. In General. Most Cited Cases
(Formerly 190k14(1))
Under the statutory standard that natural gas rates shall be "just and reasonable" it is the result reached and not the method employed that is controlling. Natural Gas Act § § 4(a), 5(a), 15 U.S.C.A. § § 717c(a), 717d(a).

[6] **Gas 190 14.5(6)**

190 Gas
190k14 Charges
190k14.5 Judicial Review and Enforcement of Regulations
190k14.5(6) k. Scope of Review and Trial De Novo. Most Cited Cases
(Formerly 190k14(1))
If the total effect of natural gas rates fixed by Federal Power Commission cannot be said to be unjust and unreasonable, judicial inquiry under the Natural Gas Act is at an end. Natural Gas Act, § § 4(a), 5(a), 6, 19(b), 15 U.S.C.A. § § 717c(a), 717d(a), 717e, 717r(b).

[7] **Gas 190 14.5(7)**

190 Gas
190k14 Charges
190k14.5 Judicial Review and Enforcement of Regulations
190k14.5(7) k. Presumptions. Most Cited Cases
(Formerly 190k14(1))
An order of the Federal Power Commission fixing rates for natural gas is the product of expert judgment, which carries a presumption of validity, and one who would upset the rate must make a convincing showing that it is invalid because it is unjust and unreasonable in its consequences. Natural Gas Act, § § 4(a), 5(a), 6, 19(b), 15 U.S.C.A. § § 717c(a), 717d(a), 717e, 717r(b).

[8] **Gas 190 14.4(1)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges
190k14.4(1) k. In General. Most Cited Cases
(Formerly 190k14(1))
The fixing of just and reasonable rates for natural gas by the Federal Power Commission involves a balancing of the investor and the consumer interests. Natural Gas Act, § § 4(a), 5(a), 15 U.S.C.A. § § 717c(a), 717d(a).

[9] **Gas 190 14.4(9)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges
190k14.4(9) k. Depreciation and Depletion. Most Cited Cases
(Formerly 190k14(1))
As respects rates for natural gas, from the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business, which includes service on the debt and dividends on stock, and by such standard the return to the equity owner should be commensurate with the terms on investments in other enterprises having corresponding risks, and such returns should be sufficient to assure confidence in the financial integrity of the enterprise so as to maintain its credit and to attract capital. Natural Gas Act, § § 4(a), 5(a), 15 U.S.C.A. § § 717c(a), 717d(a).

[10] **Gas 190 14.4(9)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges
190k14.4(9) k. Depreciation and Depletion. Most Cited Cases
(Formerly 190k14(1))
The fixing by the Federal Power Commission of a rate of return that permitted a natural gas company to earn $2,191,314 annually was supported by substantial evidence. Natural Gas Act, § § 4(a), 5(a), 6, 19(b), 15 U.S.C.A. § § 717c(a), 717d(a), 717e, 717r(b).

[11] **Gas 190 14.4(9)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges
190k14.4(9) k. Depreciation and Depletion. Most Cited Cases
(Formerly 190k14(1))
Rates which enable a natural gas company to operate successfully, to maintain its financial integrity, to attract capital and to compensate its investors for the risks assumed cannot be condemned as invalid, even though they might produce only a meager return on the so-called "fair value" rate base. Natural Gas Act,

§ § 4(a), 5(a), 6, 19(b), 15 U.S.C.A. § § 717c(a), 717d(a), 717e, 717r(b).

[12] **Gas 190 14.4(4)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges
190k14.4(4) k. Method of Valuation. Most Cited Cases
(Formerly 190k14(1))

A return of only 3 27/100 per cent. on alleged rate base computed on reproduction cost new to natural gas company earning an annual average return of about 9 per cent. on average investment and satisfied with existing gas rates suggests an inflation of the base on which the rate had been computed, and justified Federal Power Commission in rejecting reproduction cost as the measure of the rate base. Natural Gas Act, § § 4(a), 5(a), 15 U.S.C.A. § § 717c(a), 717d(a).

[13] **Gas 190 14.4(9)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges
190k14.4(9) k. Depreciation and Depletion. Most Cited Cases
(Formerly 190k14(1))

There is no constitutional requirement that owner who engages in a wasting-asset business of limited life shall receive at the end more than he has put into it, and such rule is applicable to a natural gas company since the ultimate exhaustion of its supply of gas is inevitable. Natural Gas Act, § § 4(a), 5(a), 6, 19(b), 15 U.S.C.A. § § 717c(a), 717d(a), 717e, 717r(b).

[14] **Gas 190 14.4(9)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges
190k14.4(9) k. Depreciation and Depletion. Most Cited Cases
(Formerly 190k14(1))

In fixing natural gas rate the basing of annual depreciation on cost is proper since by such procedure the utility is made whole and the integrity of its investment is maintained, and no more is required. Natural Gas Act, § § 4(a), 5(a), 6, 19(b), 15 U.S.C.A. § § 717c(a), 717d(a), 717e, 717r(b).

[15] **Gas 190 14.3(4)**

190 Gas
190k14 Charges
190k14.3 Administrative Regulation
190k14.3(4) k. Findings and Orders. Most Cited Cases
(Formerly 190k14(1))

There are no constitutional requirements more exacting than the standards of the Natural Gas Act which are that gas rates shall be just and reasonable, and a rate order which conforms with the act is valid. Natural Gas Act, § § 4(a), 5(a), 6, 19(b), 15 U.S.C.A. § § 717c(a), 717d(a), 717e, 717r(b).

[16] **Commerce 83 62.2**

83 Commerce
83II Application to Particular Subjects and Methods of Regulation
83II(B) Conduct of Business in General
83k62.2 k. Gas. Most Cited Cases
(Formerly 83k13)

The purpose of the Natural Gas Act was to provide through the exercise of the national power over interstate commerce an agency for regulating the wholesale distribution to public service companies of natural gas moving in interstate commerce not subject to certain types of state regulation, and the act was not intended to take any authority from state commissions or to usurp state regulatory authority. Natural Gas Act, § 1 et seq., 15 U.S.C.A. § 717 et seq.

[17] **Mines and Minerals 260 92.5(3)**

260 Mines and Minerals
260III Operation of Mines, Quarries, and Wells
260III(A) Statutory and Official Regulations
260k92.5 Federal Law and Regulations
260k92.5(3) k. Oil and Gas. Most Cited Cases
(Formerly 260k92.7, 260k92)

Under the Natural Gas Act, the Federal Power Commission has no authority over the production or gathering of natural gas. Natural Gas Act, § 1(b), 15 U.S.C.A. § 717(b).

[18] **Gas 190 14.1(1)**

190 Gas
190k14 Charges
190k14.1 In General
190k14.1(1) k. In General; Amount and

Regulation. Most Cited Cases
(Formerly 190k14(1))
The primary aim of the Natural Gas Act was to protect consumers against exploitation at the hands of natural gas companies and holding companies owning a majority of the pipe-line mileage which moved gas in interstate commerce and against which state commissions, independent producers and communities were growing quite helpless. Natural Gas Act, § § 4, 6-10, 14, 15 U.S.C.A. § § 717c, 717e-717i, 717m.

[19] **Gas 190 14.1(1)**

190 Gas
190k14 Charges
190k14.1 In General
190k14.1(1) k. In General; Amount and Regulation. Most Cited Cases
(Formerly 190k14(1))
Apart from the express exemptions contained in § 7 of the Natural Gas Act considerations of conservation are material where abandonment or extensions of facilities or service by natural gas companies are involved, but exploitation of consumers by private operators through maintenance of high rates cannot be continued because of the indirect benefits derived therefrom by a state containing natural gas deposits. Natural Gas Act, § § 4, 5, and § 7 as amended 15 U.S.C.A. § § 717c, 717d, 717f.

[20] **Commerce 83 62.2**

83 Commerce
83II Application to Particular Subjects and Methods of Regulation
83II(B) Conduct of Business in General
83k62.2 k. Gas. Most Cited Cases
(Formerly 83k13)
A limitation on the net earnings of a natural gas company from its interstate business is not a limitation on the power of the producing state, either to safeguard its tax revenues from such industry, or to protect the interests of those who sell their gas to the interstate operator, particularly where the return allowed the company by the Federal Power Commission was a net return after all such charges. Natural Gas Act, § § 4, 5, and § 7, as amended, 15 U.S.C.A. § § 717c, 717d, 717f.

[21] **Gas 190 14.4(1)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges
190k14.4(1) k. In General. Most Cited Cases
(Formerly 190k14(1))
The Natural Gas Act granting Federal Power Commission power to fix "just and reasonable rates" does not include the power to fix rates which will disallow or discourage resales for industrial use. Natural Gas Act, § § 4(a), 5(a), 15 U.S.C.A. § § 717c(a), 717d(a).

[22] **Gas 190 14.4(1)**

190 Gas
190k14 Charges
190k14.4 Reasonableness of Charges
190k14.4(1) k. In General. Most Cited Cases
(Formerly 190k14(1))
The wasting-asset nature of the natural gas industry does not require the maintenance of the level of rates so that natural gas companies can make a greater profit on each unit of gas sold. Natural Gas Act, § § 4(a), 5(a), 15 U.S.C.A. § § 717c(a), 717d(a).

[23] **Federal Courts 170B 452**

170B Federal Courts
170BVII Supreme Court
170BVII(B) Review of Decisions of Courts of Appeals
170Bk452 k. Certiorari in General. Most Cited Cases
(Formerly 106k383(1))
Where the Federal Power Commission made no findings as to any discrimination or unreasonable differences in rates, and its failure was not challenged in the petition to review, and had not been raised or argued by any party, the problem of discrimination was not open to review by the Supreme Court on certiorari. Natural Gas Act, § 4(b), 15 U.S.C.A. § 717c(b).

[24] **Constitutional Law 92 74**

92 Constitutional Law
92III Distribution of Governmental Powers and Functions
92III(B) Judicial Powers and Functions
92k71 Encroachment on Executive
92k74 k. Powers, Duties, and Acts Under Legislative Authority. Most Cited Cases
(Formerly 15Ak226)
Congress has entrusted the administration of the

Natural Gas Act to the Federal Power Commission and not to the courts, and apart from the requirements of judicial review, it is not for the Supreme Court to advise the Commission how to discharge its functions. Natural Gas Act, § § 1 et seq., 19(b), 15 U.S.C.A. § § 717 et seq., 717r(b).

[25] **Gas 190 ⚷14.5(3)**

190 Gas
190k14 Charges
190k14.5 Judicial Review and Enforcement of Regulations
190k14.5(3) k. Decisions Reviewable. Most Cited Cases
(Formerly 190k14(1))

Under the Natural Gas Act, where order sought to be reviewed does not of itself adversely affect complainant but only affects his rights adversely on the contingency of future administrative action, the order is not reviewable, and resort to the courts in such situation is either premature or wholly beyond the province of such courts. Natural Gas Act, § 19(b), 15 U.S.C.A. § 717r(b).

[26] **Gas 190 ⚷14.5(4)**

190 Gas
190k14 Charges
190k14.5 Judicial Review and Enforcement of Regulations
190k14.5(4) k. Persons Entitled to Relief; Parties. Most Cited Cases
(Formerly 190k14(1))

Findings of the Federal Power Commission on lawfulness of past natural gas rates, which the Commission was without power to enforce, were not reviewable under the Natural Gas Act giving any "party aggrieved" by an order of the Commission the right of review. Natural Gas Act, § 19(b), 15 U.S.C.A. § 717r(b).

****283** ***592** Mr. Francis M. Shea, Asst. Atty. Gen., for petitioners Federal Power Com'n and others.
***593** Mr. Spencer W. Reeder, of Cleveland, Ohio, for petitioner City of cleveland.
Mr. William B. Cockley, of Cleveland, Ohio, for respondent.
Mr. M. M. Neeley, of Charleston, W. Va., for State of West Virginia, as amicus curiae by special leave of Court.

Mr. Justice DOUGLAS delivered the opinion of the Court.

The primary issue in these cases concerns the validity under the Natural Gas Act of 1938, 52 Stat. 821, 15 U.S.C. s 717 et seq., 15 U.S.C.A. s 717 et seq., of a rate order issued by the Federal Power Commission reducing the rates chargeable by Hope Natural Gas Co., 44 P.U.R.,N.S., 1. On a petition for review of the order made pursuant to s 19(b) of the Act, the ***594** Circuit Court of Appeals set it aside, one judge dissenting. 4 Cir., 134 F.2d 287. The cases ****284** are here on petitions for writs of certiorari which we granted because of the public importance of the questions presented. City of Cleveland v. Hope Natural Gas Co., 319 U.S. 735, 63 S.Ct. 1165.

Hope is a West Virginia corporation organized in 1898. It is a wholly owned subsidiary of Standard Oil Co. (N.J.). Since the date of its organization, it has been in the business of producing, purchasing and marketing natural gas in that state. [FN1] It sells some of that gas to local consumers in West Virginia. But the great bulk of it goes to five customer companies which receive it at the West Virginia line and distribute it in Ohio and in Pennsylvania. [FN2] In July, 1938, the cities of Cleveland and Akron filed complaints with the Commission charging that the rates collected by Hope from East Ohio Gas Co. (an affiliate of Hope which distributes gas in Ohio) were excessive and unreasonable. Later in 1938 the Commission on its own motion instituted an investigation to determine the reasonableness of all of Hope's interstate rates. In March ***595** 1939 the Public Utility Commission of Pennsylvania filed a complaint with the Commission charging that the rates collected by Hope from Peoples Natural Gas Co. (an affiliate of Hope distributing gas in Pennsylvania) and two non-affiliated companies were unreasonable. The City of Cleveland asked that the challenged rates be declared unlawful and that just and reasonable rates be determined from June 30, 1939 to the date of the Commission's order. The latter finding was requested in aid of state regulation and to afford the Public Utilities Commission of Ohio a proper basic for disposition of a fund collected by East Ohio under bond from Ohio consumers since June 30, 1939. The cases were consolidated and hearings were held.

FN1 Hope produces about one-third of its annual gas requirements and purchases the rest under some 300 contracts.

FN2 These five companies are the East Ohio Gas Co., the Peoples Natural Gas Co., the

River Gas Co., the Fayette County Gas Co., and the Manufacturers Light & Heat Co. The first three of these companies are, like Hope, subsidiaries of Standard Oil Co. (N.J.). East Ohio and River distribute gas in Ohio, the other three in Pennsylvania. Hope's approximate sales in m.c.f. for 1940 may be classified as follows:

Local West Virginia. sales.	11,000,000
East Ohio.	40,000,000
Peoples.	10,000,000
River.	400,000
Fayette.	860,000
Manufacturers.	2,000,000

Local West Virginia

Hope's natural gas is processed by Hope Construction & Refining Co., an affiliate, for the extraction of gasoline and butane. Domestic Coke Corp., another affiliate, sells coke-oven gas to Hope for boiler fuel.

On May 26, 1942, the Commission entered its order and made its findings. Its order required Hope to decrease its future interstate rates so as to reflect a reduction, on an annual basis of not less than $3,609,857 in operating revenues. And it established 'just and reasonable' average rates per m.c.f. for each of the five customer companies. FN3 In response to the prayer of the City of Cleveland the Commission also made findings as to the lawfulness of past rates, although concededly it had no authority under the Act to fix past rates or to award reparations. 44 P.U.R.,U.S., at page 34. It found that the rates collected by Hope from East Ohio were unjust, unreasonable, excessive and therefore unlawful, by $830,892 during 1939, $3,219,551 during 1940, and $2,815,789 on an annual basis since 1940. It further found that just, reasonable, and lawful rates for gas sold by Hope to East Ohio for resale for ultimate public consumption were those required ***596** to produce $11,528,608 for 1939, $11,507,185 for 1940 and $11.910,947 annually since 1940.

FN3 These required minimum reductions of 7¢ per m.c.f. from the 36.5¢ and 35.5¢ rates previously charged East Ohio and Peoples, respectively, and 3¢ per m.c.f. from the 31.5¢ rate previously charged Fayette and Manufacturers.

The Commission established an interstate rate base of $33,712,526 which, it found, represented the 'actual legitimate cost' of the company's interstate property less depletion and depreciation and plus unoperated acreage, working capital and future net capital additions. The Commission, beginning with book cost, made ****285** certain adjustments not necessary to relate here and found the 'actual legitimate cost' of the plant in interstate service to be $51,957,416, as of December 31, 1940. It deducted accrued depletion and depreciation, which it found to be $22,328,016 on an 'economic-service-life' basis. And it added $1,392,021 for future net capital additions, $566,105 for useful unoperated acreage, and $2,125,000 for working capital. It used 1940 as a test year to estimate future revenues and expenses. It allowed over $16,000,000 as annual operating expenses-about $1,300,000 for taxes, $1,460,000 for depletion and depreciation, $600,000 for exploration and development costs, $8,500,000 for gas purchased. The Commission allowed a net increase of $421,160 over 1940 operating expenses, which amount was to take care of future increase in wages, in West Virginia property taxes, and in exploration and development costs. The total amount of deductions allowed from interstate revenues was $13,495,584.

Hope introduced evidence from which it estimated reproduction cost of the property at $97,000,000. It also presented a so-called trended 'original cost' estimate which exceeded $105,000,000. The latter was designed 'to indicate what the original cost of the property would have been if 1938 material and labor prices had prevailed throughout the whole period of the piece-meal construction of the company's property since 1898.' 44 P.U.R.,N.S., at pages 8, 9. Hope estimated by the 'percent condition' method accrued depreciation at about 35% of ***597** reproduction cost new. On that basis Hope contended for a rate base of $66,000,000. The Commission refused to place any reliance on reproduction cost new, saying that it was 'not predicated upon facts' and was 'too conjectural and illusory to be given any weight in these proceedings.' Id., 44 P.U.R.,U.S., at page 8. It likewise refused to give any 'probative value' to trended 'original cost' since it was 'not founded in fact' but was 'basically erroneous' and produced 'irrational results.' Id., 44 P.U.R., N.S., at page 9. In determining the amount of accrued depletion and depreciation the Commission, following Lindheimer v. Illinois Bell

Telephone Co., 292 U.S. 151, 167-169, 54 S.Ct. 658, 664-666, 78 L.Ed. 1182; Federal Power Commission v. Natural Gas Pipeline Co., 315 U.S. 575, 592, 593, 62 S.Ct. 736, 745, 746, 86 L.Ed. 1037, based its computation on 'actual legitimate cost'. It found that Hope during the years when its business was not under regulation did not observe 'sound depreciation and depletion practices' but 'actually accumulated an excessive reserve' FN4 of about $46,000,000. Id., 44 P.U.R.,N.S., at page 18. One member of the Commission thought that the entire amount of the reserve should be deducted from 'actual legitimate cost' in determining the rate base. FN5 The majority of the ***598** Commission concluded, however, that where, as here, a business is brought under regulation for the first time and where incorrect depreciation and depletion practices have prevailed, the deduction of the reserve requirement (actual existing depreciation and depletion) rather than the excessive reserve should be made so as to ****286** lay 'a sound basis for future regulation and control of rates.' Id., 44 P.U.R.,N.S., at page 18. As we have pointed out, it determined accrued depletion and depreciation to be $22,328,016; and it allowed approximately $1,460,000 as the annual operating expense for depletion and depreciation. FN6

FN4 The book reserve for interstate plant amounted at the end of 1938 to about $18,000,000 more than the amount determined by the Commission as the proper reserve requirement. The Commission also noted that 'twice in the past the company has transferred amounts aggregating $7,500,000 from the depreciation and depletion reserve to surplus. When these latter adjustments are taken into account, the excess becomes $25,500,000, which has been exacted from the ratepayers over and above the amount required to cover the consumption of property in the service rendered and thus to keep the investment unimpaired.' 44 P.U.R.,N.S., at page 22.

FN5 That contention was based on the fact that 'every single dollar in the depreciation and depletion reserves' was taken 'from gross operating revenues whose only source was the amounts charged customers in the past for natural gas. It is, therefore, a fact that the depreciation and depletion reserves have been contributed by the customers and do not represent any investment by Hope.' Id., 44 P.U.R.,N.S., at page 40. And see Railroad Commission v. Cumberland Tel. & T. Co., 212 U.S. 414, 424, 425, 29 S.Ct. 357, 361, 362, 53 L.Ed. 577; 2 Bonbright, Valuation of Property (1937), p. 1139.

FN6 The Commission noted that the case was 'free from the usual complexities involved in the estimate of gas reserves because the geologists for the company and the Commission presented estimates of the remaining recoverable gas reserves which were about one per cent apart.' 44 P.U.R.,N.S., at pages 19, 20.

The Commission utilized the 'straight-line-basis' for determining the depreciation and depletion reserve requirements. It used estimates of the average service lives of the property by classes based in part on an inspection of the physical condition of the property. And studies were made of Hope's retirement experience and maintenance policies over the years. The average service lives of the various classes of property were converted into depreciation rates and then applied to the cost of the property to ascertain the portion of the cost which had expired in rendering the service.

The record in the present case shows that Hope is on the lookout for new sources of supply of natural gas and is contemplating an extension of its pipe line into Louisiana for that purpose. The Commission recognized in fixing the rates of depreciation that much material may be used again when various present sources of gas supply are exhausted, thus giving that property more than scrap value at the end of its present use.

Hope's estimate of original cost was about $69,735,000-approximately $17,000,000 more than the amount found by the Commission. The item of $17,000,000 was made up largely of expenditures which prior to December 31, 1938, were charged to operating expenses. Chief among those expenditures was some $12,600,000 expended ***599** in well-drilling prior to 1923. Most of that sum was expended by Hope for labor, use of drilling-rigs, hauling, and similar costs of well-drilling. Prior to 1923 Hope followed the general practice of the natural gas industry and charged the cost of drilling wells to operating expenses. Hope continued that practice until the Public Service Commission of West Virginia in 1923 required it to capitalize such expenditures, as does the Commission under its present Uniform System of Accounts. FN7 The Commission refused to add such items to the rate base stating that 'No greater injustice to consumers could be done than to allow items as operating expenses and at a later date include them in the rate base, thereby placing multiple charges upon the consumers.' Id., 44 P.U.R.,N.S., at page 12. For the same reason the Commission excluded from the rate base about $1,600,000 of expenditures on properties which Hope acquired from other utilities, the latter having charged those payments to operating expenses. The Commission disallowed certain other overhead items amounting to over $3,000,000 which also had been previously charged to operating expenses. And it refused to add some $632,000 as interest during construction since no interest was in fact paid.

FN7 See Uniform System of Accounts prescribed for Natural Gas Companies effective January 1, 1940, Account No. 332.1.

Hope contended that it should be allowed a return of not less than 8%. The Commission found that an 8% return would be unreasonable but that 6 1/2% was a fair rate of return. That rate of return, applied to the rate base of $33,712,526, would produce $2,191,314 annually, as compared with the present income of not less than $5,801,171.

The Circuit Court of Appeals set aside the order of the Commission for the following reasons. (1) It held that the rate base should reflect the 'present fair value' of the ***600** property, that the Commission in determining the 'value' should have considered reproduction cost and trended original cost, and that 'actual legitimate cost' (prudent investment) was not the proper measure of 'fair value' where price levels had changed since the investment. (2) It concluded that the well-drilling costs and overhead items in the amount of some $17,000,000 should have been included in the rate base. (3) It held that accrued depletion and depreciation and the annual allowance for that expense should be computed on the basis of 'present fair value' of the property not on the basis of 'actual legitimate cost'.

****287** The Circuit Court of Appeals also held that the Commission had no power to make findings as to past rates in aid of state regulation. But it concluded that those findings were proper as a step in the process of fixing future rates. Viewed in that light, however, the findings were deemed to be invalidated by the same errors which vitiated the findings on which the rate order was based.

Order Reducing Rates. Congress has provided in s 4(a) of the Natural Gas Act that all natural gas rates subject to the jurisdiction of the Commission 'shall be just and reasonable, and any such rate or charge that is not just and reasonable is hereby declared to be unlawful.' Sec. 5(a) gives the Commission the power, after hearing, to determine the 'just and reasonable rate' to be thereafter observed and to fix the rate by order. Sec. 5(a) also empowers the Commission to order a 'decrease where existing rates are unjust * * * unlawful, or are not the lowest reasonable rates.' And Congress has provided in s 19(b) that on review of these rate orders the 'finding of the Commission as to the facts, if supported by substantial evidence, shall be conclusive.' Congress, however, has provided no formula by which the 'just and reasonable' rate is to be determined. It has not filled in the ***601** details of the general prescription FN8 of s 4(a) and s 5(a). It has not expressed in a specific rule the fixed principle of 'just and reasonable'.

FN8. Sec. 6 of the Act comes the closest to supplying any definite criteria for rate making. It provides in subsection (a) that, 'The Commission may investigate the ascertain the actual legitimate cost of the property of every natural-gas company, the depreciation therein, and, when found necessary for rate-making purposes, other facts which bear on the determination of such cost or depreciation and the fair value of such property.' Subsection (b) provides that every natural-gas company on request shall file with the Commission a statement of the 'original cost' of its property and shall keep the Commission informed regarding the 'cost' of all additions, etc.

[1] [2] When we sustained the constitutionality of the Natural Gas Act in the Natural Gas Pipeline Co. case, we stated that the 'authority of Congress to regulate the prices of commodities in interstate commerce is at least as great under the Fifth Amendment as is that of the states under the Fourteenth to regulate the prices of commodities in intrastate commerce.' 315 U.S. at page 582, 62 S.Ct. at page 741, 86 L.Ed. 1037. Rate-making is indeed but one species of price-fixing. Munn v. Illinois, 94 U.S. 113, 134, 24 L.Ed. 77. The fixing of prices, like other applications of the police power, may reduce the value of the property which is being regulated. But the fact that the value is reduced does not mean that the regulation is invalid. Block v. Hirsh, 256 U.S. 135, 155-157, 41 S.Ct. 458, 459, 460, 65 L.Ed. 865, 16 A.L.R. 165; Nebbia v. New York, 291 U.S. 502, 523-539, 54 S.Ct. 505, 509-517, 78 L.Ed. 940, 89 A.L.R. 1469, and cases cited. It does, however, indicate that 'fair value' is the end product of the process of rate-making not the starting point as the Circuit Court of Appeals held. The heart of the matter is that rates cannot be made to depend upon 'fair value' when the value of the going enterprise depends on earnings under whatever rates may be anticipated. FN9

FN9 We recently stated that the meaning of the word 'value' is to be gathered 'from the purpose for which a valuation is being made. Thus the question in a valuation for rate making is how much a utility will be allowed to earn. The basic

> question in a valuation for reorganization purposes is how much the enterprise in all probability can earn.' Institutional Investors v. Chicago, M., St. P. & P.R. Co., 318 U.S. 523, 540, 63 S.Ct. 727, 738.

***602** [3] [4] [5] [6] [7] We held in Federal Power Commission v. Natural Gas Pipeline Co., supra, that the Commission was not bound to the use of any single formula or combination of formulae in determining rates. Its rate-making function, moreover, involves the making of 'pragmatic adjustments.' Id., 315 U.S. at page 586, 62 S.Ct. at page 743, 86 L.Ed. 1037. And when the Commission's order is challenged in the courts, the question is whether that order 'viewed in its entirety' meets the requirements of the Act. Id., 315 U.S. at page 586, 62 S.Ct. at page 743, 86 L.Ed. 1037. Under the statutory standard of 'just and reasonable' it is the result reached not the method employed which is controlling. Cf. ****288**Los Angeles Gas & Electric Corp. v. Railroad Commission, 289 U.S. 287, 304, 305, 314, 53 S.Ct. 637, 643, 644, 647, 77 L.Ed. 1180; West Ohio Gas Co. v. Public Utilities Commission (No. 1), 294 U.S. 63, 70, 55 S.Ct. 316, 320, 79 L.Ed. 761; West v. Chesapeake & Potomac Tel. Co., 295 U.S. 662, 692, 693, 55 S.Ct. 894, 906, 907, 79 L.Ed. 1640 (dissenting opinion). It is not theory but the impact of the rate order which counts. If the total effect of the rate order cannot be said to be unjust and unreasonable, judicial inquiry under the Act is at an end. The fact that the method employed to reach that result may contain infirmities is not then important. Moreover, the Commission's order does not become suspect by reason of the fact that it is challenged. It is the product of expert judgment which carries a presumption of validity. And he who would upset the rate order under the Act carries the heavy burden of making a convincing showing that it is invalid because it is unjust and unreasonable in its consequences. Cf. Railroad Commission v. Cumberland Tel. & T. Co., 212 U.S. 414, 29 S.Ct. 357, 53 L.Ed. 577; Lindheimer v. Illinois Bell Tel. Co., supra, 292 U.S. at pages 164, 169, 54 S.Ct. at pages 663, 665, 78 L.Ed. 1182; Railroad Commission v. Pacific Gas & E. Co., 302 U.S. 388, 401, 58 S.Ct. 334, 341, 82 L.Ed. 319.

***603** [8] [9] The rate-making process under the Act, i.e., the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests. Thus we stated in the Natural Gas Pipeline Co. case that 'regulation does not insure that the business shall produce net revenues.' 315 U.S. at page 590, 62 S.Ct. at page 745, 86 L.Ed. 1037. But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. Cf. Chicago & Grand Trunk R. Co. v. Wellman, 143 U.S. 339, 345, 346, 12 S.Ct. 400, 402, 36 L.Ed. 176. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. See State of Missouri ex rel. South-western Bell Tel. Co. v. Public Service Commission, 262 U.S. 276, 291, 43 S.Ct. 544, 547, 67 L.Ed. 981, 31 A.L.R. 807 (Mr. Justice Brandeis concurring). The conditions under which more or less might be allowed are not important here. Nor is it important to this case to determine the various permissible ways in which any rate base on which the return is computed might be arrived at. For we are of the view that the end result in this case cannot be condemned under the Act as unjust and unreasonable from the investor or company viewpoint.

We have already noted that Hope is a wholly owned subsidiary of the Standard Oil Co. (N.J.). It has no securities outstanding except stock. All of that stock has been owned by Standard since 1908. The par amount presently outstanding is approximately $28,000,000 as compared with the rate base of $33,712,526 established by ***604** the Commission. Of the total outstanding stock $11,000,000 was issued in stock dividends. The balance, or about $17,000,000, was issued for cash or other assets. During the four decades of its operations Hope has paid over $97,000,000 in cash dividends. It had, moreover, accumulated by 1940 an earned surplus of about $8,000,000. It had thus earned the total investment in the company nearly seven times. Down to 1940 it earned over 20% per year on the average annual amount of its capital stock issued for cash or other assets. On an average invested capital of some $23,000,000 Hope's average earnings have been about 12% a year. And during this period it had accumulated in addition reserves for depletion and depreciation of about $46,000,000. Furthermore, during 1939, 1940 and 1941, Hope paid dividends of 10% on its stock. And in the year 1942, during about half of which the lower rates were in effect, it paid dividends of 7 1/2%. From 1939-1942 its earned surplus increased from $5,250,000 to about $13,700,000, i.e., to almost half the par value of its outstanding stock.

As we have noted, the Commission fixed a rate of return which permits Hope to earn $2,191,314 annually. In determining that amount it stressed the importance of maintaining the financial integrity of the ****289** company. It considered the financial history of Hope and a vast array of data bearing on the natural gas industry, related businesses, and general economic conditions. It noted that the yields on better issues of bonds of natural gas companies sold in the last few years were 'close to 3 per cent', 44 P.U.R.,N.S., at page 33. It stated that the company was a 'seasoned enterprise whose risks have been minimized' by adequate provisions for depletion and depreciation (past and present) with 'concurrent high profits', by 'protected established markets, through affiliated distribution companies, in populous and industralized areas', and by a supply of gas locally to meet all requirements,***605** 'except on certain peak days in the winter, which it is feasible to supplement in the future with gas from other sources.' Id., 44 P.U.R.,N.S., at page 33. The Commission concluded, 'The company's efficient management, established markets, financial record, affiliations, and its prospective business place it in a strong position to attract capital upon favorable terms when it is required.' Id., 44 P.U.R.,N.S., at page 33.

[10] [11] [12] In view of these various considerations we cannot say that an annual return of $2,191,314 is not 'just and reasonable' within the meaning of the Act. Rates which enable the company to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risks assumed certainly cannot be condemned as invalid, even though they might produce only a meager return on the so-called 'fair value' rate base. In that connection it will be recalled that Hope contended for a rate base of $66,000,000 computed on reproduction cost new. The Commission points out that if that rate base were accepted, Hope's average rate of return for the four-year period from 1937-1940 would amount to 3.27%. During that period Hope earned an annual average return of about 9% on the average investment. It asked for no rate increases. Its properties were well maintained and operated. As the Commission says such a modest rate of 3.27% suggests an 'inflation of the base on which the rate has been computed.' Dayton Power & Light Co. v. Public Utilities Commission, 292 U.S. 290, 312, 54 S.Ct. 647, 657, 78 L.Ed. 1267. Cf. Lindheimer v. Illinois Bell Tel. Co., supra, 292 U.S. at page 164, 54 S.Ct. at page 663, 78 L.Ed. 1182. The incongruity between the actual operations and the return computed on the basis of reproduction cost suggests that the Commission was wholly justified in rejecting the latter as the measure of the rate base.

In view of this disposition of the controversy we need not stop to inquire whether the failure of the Commission to add the $17,000,000 of well-drilling and other costs to ***606** the rate base was consistent with the prudent investment theory as developed and applied in particular cases.

[13] [14] [15] Only a word need be added respecting depletion and depreciation. We held in the Natural Gas Pipeline Co. case that there was no constitutional requirement 'that the owner who embarks in a wasting-asset business of limited life shall receive at the end more than he has put into it.' 315 U.S. at page 593, 62 S.C. at page 746, 86 L.Ed. 1037. The Circuit Court of Appeals did not think that that rule was applicable here because Hope was a utility required to continue its service to the public and not scheduled to end its business on a day certain as was stipulated to be true of the Natural Gas Pipeline Co. But that distinction is quite immaterial. The ultimate exhaustion of the supply is inevitable in the case of all natural gas companies. Moreover, this Court recognized in Lindheimer v. Illinois Bell Tel. Co., supra, the propriety of basing annual depreciation on cost. FN10 By such a procedure the ****290** utility is made whole and the integrity of its investment maintained. FN11 No more is required. FN12 We cannot approve the contrary holding ***607** of United Railways & Electric Co. v. West, 280 U.S. 234, 253, 254, 50 S.Ct. 123, 126, 127, 74 L.Ed. 390. Since there are no constitutional requirements more exacting than the standards of the Act, a rate order which conforms to the latter does not run afoul of the former.

FN10 Chief Justice Hughes said in that case (292 U.S. at pages 168, 169, 54 S.Ct. at page 665, 78 L.Ed. 1182): 'If the predictions of service life were entirely accurate and retirements were made when and as these predictions were precisely fulfilled, the depreciation reserve would represent the consumption of capital, on a cost basis, according to the method which spreads that loss over the respective service periods. But if the amounts charged to operating expenses and credited to the account for depreciation reserve are excessive, to that extent subscribers for the telephone service are required to provide, in effect, capital contributions, not to make good losses incurred by the utility in the service rendered and thus to keep its investment unimpaired, but to secure additional plant and equipment upon which the utility expects a return.'

FN11 See Mr. Justice Brandeis (dissenting) in United Railways & Electric Co. v. West, 280 U.S. 234, 259-288, 50 S.Ct. 123, 128-138, 74 L.Ed. 390, for an extended analysis of the problem.

FN12 It should be noted that the Act provides no specific rule governing depletion and depreciation. Sec. 9(a) merely states that the

> Commission 'may from time to time ascertain and determine, and by order fix, the proper and adequate rates of depreciation and amortization of the several classes of property of each natural-gas company used or useful in the production, transportation, or sale of natural gas.'

The Position of West Virginia. The State of West Virginia, as well as its Public Service Commission, intervened in the proceedings before the Commission and participated in the hearings before it. They have also filed a brief amicus curiae here and have participated in the argument at the bar. Their contention is that the result achieved by the rate order 'brings consequences which are unjust to West Virginia and its citizens' and which 'unfairly depress the value of gas, gas lands and gas leaseholds, unduly restrict development of their natural resources, and arbitrarily transfer their properties to the residents of other states without just compensation therefor.'

West Virginia points out that the Hope Natural Gas Co. holds a large number of leases on both producing and unoperated properties. The owner or grantor receives from the operator or grantee delay rentals as compensation for postponed drilling. When a producing well is successfully brought in, the gas lease customarily continues indefinitely for the life of the field. In that case the operator pays a stipulated gas-well rental or in some cases a gas royalty equivalent to one-eighth of the gas marketed. [FN13] Both the owner and operator have valuable property interests in the gas which are separately taxable under West Virginia law. The contention is that the reversionary interests in the leaseholds should be represented in the rate proceedings since it is their gas which is being sold in interstate ***608** commerce. It is argued, moreover, that the owners of the reversionary interests should have the benefit of the 'discovery value' of the gas leaseholds, not the interstate consumers. Furthermore, West Virginia contends that the Commission in fixing a rate for natural gas produced in that State should consider the effect of the rate order on the economy of West Virginia. It is pointed out that gas is a wasting asset with a rapidly diminishing supply. As a result West Virginia's gas deposits are becoming increasingly valuable. Nevertheless the rate fixed by the Commission reduces that value. And that reduction, it is said, has severe repercussions on the economy of the State. It is argued in the first place that as a result of this rate reduction Hope's West Virginia property taxes may be decreased in view of the relevance which earnings have under West Virginia law in the assessment of property for tax purposes. [FN14] Secondly, it is pointed out that West Virginia has a production tax [FN15] on the 'value' of the gas exported from the State. And we are told that for purposes of that tax 'value' becomes under West Virginia law 'practically the substantial equivalent of market value.' Thus West Virginia argues that undervaluation of Hope's gas leaseholds will cost the State many thousands of dollars in taxes. The effect, it is urged, is to impair West Virginia's tax structure for the benefit of Ohio and Pennsylvania consumers. West Virginia emphasizes, moreover, its deep interest in the conservation of its natural resources including its natural gas. It says that a reduction of the value of these leasehold values will jeopardize these conservation policies in three respects: (1) ****291** exploratory development of new fields will be discouraged; (2) abandonment of lowyield high-cost marginal wells will be hastened; and (3) secondary recovery of oil will be hampered. ***609** Furthermore, West Virginia contends that the reduced valuation will harm one of the great industries of the State and that harm to that industry must inevitably affect the welfare of the citizens of the State. It is also pointed out that West Virginia has a large interest in coal and oil as well as in gas and that these forms of fuel are competitive. When the price of gas is materially cheapened, consumers turn to that fuel in preference to the others. As a result this lowering of the price of natural gas will have the effect of depreciating the price of West Virginia coal and oil.

> FN13 See Simonton, The Nature of the Interest of the Grantee Under an Oil and Gas Lease (1918), 25 W.Va.L.Quar. 295.

> FN14 West Penn Power Co. v. Board of Review, 112 W.Va. 442, 164 S.E. 862.

> FN15 W.Va.Rev.Code of 1943, ch. 11. Art. 13, ss 2a, 3a.

West Virginia insists that in neglecting this aspect of the problem the Commission failed to perform the function which Congress entrusted to it and that the case should be remanded to the Commission for a modification of its order. [FN16]

> FN16 West Virginia suggests as a possible solution (1) that a 'going concern value' of the company's tangible assets be included in the rate base and (2) that the fair market value of gas delivered to customers be added to the outlay for operating expenses and taxes.

We have considered these contentions at length in view of the earnestness with which they have been urged upon us. We have searched the legislative history of the Natural

Gas Act for any indication that Congress entrusted to the Commission the various considerations which West Virginia has advanced here. And our conclusion is that Congress did not.

[16] [17] We pointed out in Illinois Natural Gas Co. v. Central Illinois Public Service Co., 314 U.S. 498, 506, 62 S.Ct. 384, 387, 86 L.Ed. 371, that the purpose of the Natural Gas Act was to provide, 'through the exercise of the national power over interstate commerce, an agency for regulating the wholesale distribution to public service companies of natural gas moving interstate, which this Court had declared to be interstate commerce not subject to certain types of state regulation.' As stated in the House Report the 'basic purpose' of this legislation was 'to occupy' the field in which such cases as ***610**State of Missouri v. Kansas Natural Gas Co., 265 U.S. 298, 44 S.Ct. 544, 68 L.Ed. 1027, and Public Utilities Commission v. Attleboro Steam & Electric Co., 273 U.S. 83, 47 S.Ct. 294, 71 L.Ed. 549, had held the States might not act. H.Rep. No. 709, 75th Cong., 1st Sess., p. 2. In accomplishing that purpose the bill was designed to take 'no authority from State commissions' and was 'so drawn as to complement and in no manner usurp State regulatory authority.' Id., p. 2. And the Federal Power Commission was given no authority over the 'production or gathering of natural gas.' s 1(b).

[18] The primary aim of this legislation was to protect consumers against exploitation at the lands of natural gas companies. Due to the hiatus in regulation which resulted from the Kansas Natural Gas Co. case and related decisions state commissions found it difficult or impossible to discover what it cost interstate pipe-line companies to deliver gas within the consuming states; and thus they were thwarted in local regulation. H.Rep., No. 709, supra, p. 3. Moreover, the investigations of the Federal Trade Commission had disclosed that the majority of the pipe-line mileage in the country used to transport natural gas, together with an increasing percentage of the natural gas supply for pipe-line transportation, had been acquired by a handful of holding companies. FN17 State commissions, independent producers, and communities having or seeking the service were growing quite helpless against these combinations. FN18 These were the types of problems with which those participating in the hearings were pre-occupied. FN19 Congress addressed itself to those specific evils.

FN17 S.Doc. 92, Pt. 84-A, ch. XII, Final Report, Federal Trade Commission to the Senate pursuant to S.Res.No. 83, 70th Cong., 1st Sess.

FN18 S.Doc. 92, Pt. 84-A, chs. XII, XIII, op. cit., supra, note 17.

FN19 See Hearings on H.R. 11662, Subcommittee of House Committee on Interstate & Foreign Commerce, 74th Cong., 2d Sess.; Hearings on H.R. 4008, House Committee on Interstate & Foreign Commerce, 75th Cong., 1st Sess.

611** The Federal Power Commission was given*292** broad powers of regulation. The fixing of 'just and reasonable' rates (s 4) with the powers attendant thereto FN20 was the heart of the new regulatory system. Moreover, the Commission was given certain authority by s 7(a), on a finding that the action was necessary or desirable 'in the public interest,' to require natural gas companies to extend or improve their transportation facilities and to sell gas to any authorized local distributor. By s 7(b) it was given control over the abandonment of facilities or of service. And by s 7(c), as originally enacted, no natural gas company could undertake the construction or extension of any facilities for the transportation of natural gas to a market in which natural gas was already being served by another company, or sell any natural gas in such a market, without obtaining a certificate of public convenience and necessity from the Commission. In passing on such applications for certificates of convenience and necessity the Commission was told by s 7(c), as originally enacted, that it was 'the intention of Congress that natural gas shall be sold in interstate commerce for resale for ultimate public consumption for domestic, commercial, industrial, or any other use at the lowest possible reasonable rate consistent with the maintenance of adequate service in the public interest.' The latter provision was deleted from s 7(c) when that subsection was amended by the Act of February 7, 1942, 56 Stat. 83. By that amendment limited grandfather rights were granted companies desiring to extend their facilities and services over the routes or within the area which they were already serving. Moreover, s 7(c) was broadened so as to require certificates***612** of public convenience and necessity not only where the extensions were being made to markets in which natural gas was already being sold by another company but in other situations as well.

FN20 The power to investigate and ascertain the 'actual legitimate cost' of property (s 6), the requirement as to books and records (s 8), control over rates of depreciation (s 9), the requirements for periodic and special reports (s 10), the broad powers of investigation (s 14) are among the chief powers supporting the rate making function.

[19] These provisions were plainly designed to protect the consumer interests against exploitation at the hands of private natural gas companies. When it comes to cases of abandonment or of extensions of facilities or service, we may assume that, apart from the express exemptions FN21 contained in s 7, considerations of conservation are material to the issuance of certificates of public convenience and necessity. But the Commission was not asked here for a certificate of public convenience and necessity under s 7 for any proposed construction or extension. It was faced with a determination of the amount which a private operator should be allowed to earn from the sale of natural gas across state lines through an established distribution system. Secs. 4 and 5, not s 7, provide the standards for that determination. We cannot find in the words of the Act or in its history the slightest intimation or suggestion that the exploitation of consumers by private operators through the maintenance of high rates should be allowed to continue provided the producing states obtain indirect benefits from it. That apparently was the Commission's view of the matter, for the same arguments advanced here were presented to the Commission and not adopted by it.

FN21 Apart from the grandfather clause contained in s 7(c), there is the provision of s 7(f) that a natural gas company may enlarge or extend its facilities with the 'service area' determined by the Commission without any further authorization.

We do not mean to suggest that Congress was unmindful of the interests of the producing states in their natural gas supplies when it drafted the Natural Gas Act. As we have said, the Act does not intrude on the domain traditionally reserved for control by state commissions; and the Federal Power Commission was given no authority over***613** 'the production or gathering of natural gas.' s 1(b). In addition, Congress recognized the legitimate interests of the States in the conservation of natural gas. By s 11 Congress instructed the Commission to make reports on compacts between two or more States dealing with the conservation, production and transportation of natural gas. FN22 The Commission was also ****293** directed to recommend further legislation appropriate or necessary to carry out any proposed compact and 'to aid in the conservation of natural-gas resources within the United States and in the orderly, equitable, and economic production, transportation, and distribution of natural gas.' s 11(a). Thus Congress was quite aware of the interests of the producing states in their natural gas supplies. FN23 But it left the protection of ***614** those interests to measures other than the maintenance of high rates to private companies. If the Commission is to be compelled to let the stockholders of natural gas companies have a feast so that the producing states may receive crumbs from that table, the present Act must be redesigned. Such a project raises questions of policy which go beyond our province.

FN22 See P.L. 117, approved July 7, 1943, 57 Stat. 383 containing an 'Interstate Compact to Conserve Oil and Gas' between Oklahoma, Texas, New Mexico, Illinois, Colorado, and Kansas.

FN23 As we have pointed out, s 7(c) was amended by the Act of February 7, 1942, 56 Stat. 83, so as to require certificates of public convenience and necessity not only where the extensions were being made to markets in which natural gas was already being sold by another company but to other situations as well. Considerations of conservation entered into the proposal to give the Act that broader scope. H.Rep.No. 1290, 77th Cong. 1st Sess., pp. 2, 3. And see Annual Report, Federal Power Commission (1940) pp. 79, 80; Baum, The Federal Power Commission and State Utility Regulation (1942), p. 261.

The bill amending s 7(c) originally contained a subsection (h) reading as follows: 'Nothing contained in this section shall be construed to affect the authority of a State within which natural gas is produced to authorize or require the construction or extension of facilities for the transportation and sale of such gas within such State: Provided, however, That the Commission, after a hearing upon complaint or upon its own motion, may by order forbid any intrastate construction or extension by any natural-gas company which it shall find will prevent such company from rendering adequate service to its customers in interstate or foreign commerce in territory already being served.' See Hearings on H.R. 5249, House Committee on Interstate & Foreign Commerce, 77th Cong., 1st Sess., pp. 7, 11, 21, 29, 32, 33. In explanation of its deletion the House Committee Report stated, pp. 4, 5: 'The increasingly important problems raised by the desire of several States to regulate the use of the natural gas produced therein in the interest of consumers within such States, as against the Federal power to regulate interstate commerce in the interest of both interstate and intrastate consumers, are deemed by the committee to warrant further intensive study and probably a more retailed and comprehensive plan for the handling thereof than that which would have been provided by the stricken subsection.'

[20] It is hardly necessary to add that a limitation on the net earnings of a natural gas company from its interstate business is not a limitation on the power of the producing state either to safeguard its tax revenues from that industry FN24 or to protect the interests of those who sell their gas to the interstate operator. FN25 The return which ****294** the Commission***615** allowed was the net return after all such charges.

FN24 We have noted that in the annual operating expenses of some $16,000.000 the Commission included West Virginia and federal taxes. And in the net increase of $421,160 over 1940 operating expenses allowed by the Commission was some $80,000 for increased West Virginia property taxes. The adequacy of these amounts has not been challenged here.

FN25 The Commission included in the aggregate annual operating expenses which it allowed some $8,500,000 for gas purchased. It also allowed about $1,400,000 for natural gas production and about $600,000 for exploration and development.

It is suggested, however, that the Commission in ascertaining the cost of Hope's natural gas production plant proceeded contrary to s 1(b) which provides that the Act shall not apply to 'the production or gathering of natural gas'. But such valuation, like the provisions for operating expenses, is essential to the rate-making function as customarily performed in this country. Cf. Smith, The Control of Power Rates in the United States and England (1932), 159 The Annals 101. Indeed s 14(b) of the Act gives the Commission the power to 'determine the propriety and reasonableness of the inclusion in operating expenses, capital, or surplus of all delay rentals or other forms of rental or compensation for unoperated lands and leases.'

It is suggested that the Commission has failed to perform its duty under the Act in that it has not allowed a return for gas production that will be enough to induce private enterprise to perform completely and efficiently its functions for the public. The Commission, however, was not oblivious of those matters. It considered them. It allowed, for example, delay rentals and exploration and development costs in operating expenses. FN26 No serious attempt has been made here to show that they are inadequate. We certainly cannot say that they are, unless we are to substitute our opinions for the expert judgment of the administrators to whom Congress entrusted the decision. Moreover, if in light of experience they turn out to be inadequate for development of new sources of supply, the doors of the Commission are open for increased allowances. This is not an order for all time. The Act contains machinery for obtaining rate adjustments. s 4.

FN26 See note 25, supra.

[21] [22] But it is said that the Commission placed too low a rate on gas for industrial purposes as compared with gas for domestic purposes and that industrial uses should be discouraged. It should be noted in the first place that the rates which the Commission has fixed are Hope's interstate wholesale rates to distributors not interstate rates to industrial users FN27 and domestic consumers. We hardly ***616** can assume, in view of the history of the Act and its provisions, that the resales intrastate by the customer companies which distribute the gas to ultimate consumers in Ohio and Pennsylvania are subject to the rate-making powers of the Commission. FN28 But in any event those rates are not in issue here. Moreover, we fail to find in the power to fix 'just and reasonable' rates the power to fix rates which will disallow or discourage resales for industrial use. The Committee Report stated that the Act provided 'for regulation along recognized and more or less standardized lines' and that there was 'nothing novel in its provisions'. H.Rep.No.709, supra, p. 3. Yet if we are now to tell the Commission to fix the rates so as to discourage particular uses, we would indeed be injecting into a rate case a 'novel' doctrine which has no express statutory sanction. The same would be true if we were to hold that the wasting-asset nature of the industry required the maintenance of the level of rates so that natural gas companies could make a greater profit on each unit of gas sold. Such theories of rate-making for this industry may or may not be desirable. The difficulty is that s 4(a) and s 5(a) contain only the conventional standards of rate-making for natural gas companies. FN29 The ***617** Act of February 7, 1942, by broadening s 7 gave the Commission some additional authority to deal with the conservation aspects of the problem. FN30 But s 4(a) and s 5(a) were not changed. If the standard****295** of 'just and reasonable' is to sanction the maintenance of high rates by a natural gas company because they restrict the use of natural gas for certain purposes, the Act must be further amended.

FN27 The Commission has expressed doubts over its power to fix rates on 'direct sales to industries' from interstate pipelines as distinguished from 'sales for resale to the industrial customers of distributing companies.' Annual Report, Federal Power Commission (1940), p. 11.

FN28. Sec. 1(b) of the Act provides: 'The provisions of this Act shall apply to the transportation of natural gas in interstate commerce, to the sale in interstate commerce of natural gas for resale for ultimate public consumption for domestic, commercial, industrial, or any other use, and to natural-gas companies engaged in such transportation or sale, but shall not apply to any other transportation or sale of natural gas or to the local distribution of natural gas or to the facilities used for such distribution or to the production or gathering of natural gas.' And see s 2(6), defining a 'natural-gas company', and H.Rep.No. 709, supra, pp. 2, 3.

FN29 The wasting-asset characteristic of the industry was recognized prior to the Act as requiring the inclusion of a depletion allowance among operating expenses. See Columbus Gas & Fuel Co. v. Public Utilities Commission, 292 U.S. 398, 404, 405, 54 S.Ct. 763, 766, 767, 78 L.Ed. 1327, 91 A.L.R. 1403. But no such theory of rate-making for natural gas companies as is now suggested emerged from the cases arising during the earlier period of regulation.

FN30 The Commission has been alert to the problems of conservation in its administration of the Act. It has indeed suggested that it might be wise to restrict the use of natural gas 'by functions rather than by areas.' Annual Report (1940) p. 79.

The Commission stated in that connection that natural gas was particularly adapted to certain industrial uses. But it added that the general use of such gas 'under boilers for the production of steam' is 'under most circumstances of very questionable social economy.' Ibid.

[23] [24] It is finally suggested that the rates charged by Hope are discriminatory as against domestic users and in favor of industrial users. That charge is apparently based on s 4(b) of the Act which forbids natural gas companies from maintaining 'any unreasonable difference in rates, charges, service, facilities, or in any other respect, either as between localities or as between classes of service.' The power of the Commission to eliminate any such unreasonable differences or discriminations is plain. s 5(a). The Commission, however, made no findings under s 4(b). Its failure in that regard was not challenged in the petition to review. And it has not been raised or argued here by any party. Hence the problem of discrimination has no proper place in the present decision. It will be time enough to pass on that issue when it is presented to us. Congress has entrusted the administration of the Act to the Commission not to the courts. Apart from the requirements of judicial review it is not ***618** for us to advise the Commission how to discharge its functions.

Findings as to the Lawfulness of Past Rates. As we have noted, the Commission made certain findings as to the lawfulness of past rates which Hope had charged its interstate customers. Those findings were made on the complaint of the City of Cleveland and in aid of state regulation. It is conceded that under the Act the Commission has no power to make reparation orders. And its power to fix rates admittedly is limited to those 'to be thereafter observed and in force.' s 5(a). But the Commission maintains that it has the power to make findings as to the lawfulness of past rates even though it has no power to fix those rates. [FN31] However that may be, we do not think that these findings were reviewable under s 19(b) of the Act. That section gives any party 'aggrieved by an order' of the Commission a review 'of such order' in the circuit court of appeals for the circuit where the natural gas company is located or has its principal place of business or in the United States Court of Appeals for the District of Columbia. We do not think that the findings in question fall within that category.

FN31 The argument is that s 4(a) makes 'unlawful' the charging of any rate that is not just and reasonable. And s 14(a) gives the Commission power to investigate any matter 'which it may find necessary or proper in order to determine whether any person has violated' any provision of the Act. Moreover, s 5(b) gives the Commission power to investigate and determine the cost of production or transportation of natural gas in cases where it has 'no authority to establish a rate governing the transportation or sale of such natural gas.' And s 17(c) directs the Commission to 'make available to the several State commissions such information and reports as may be of assistance in State regulation of natural-gas companies.' For a discussion of these points by the Commission see 44 P.U.R.,N.S., at pages 34, 35.

[25] [26] The Court recently summarized the various types of administrative action or determination reviewable as orders under the Urgent Deficiencies Act of October 22, ***619** 1913, 28 U.S.C. ss 45, 47a, 28 U.S.C.A. ss 45, 47a, and kindred statutory provisions. Rochester Tel. Corp. v. United States, 307 U.S. 125, 59 S.Ct. 754, 83 L.Ed. 1147. It was there pointed out that where 'the order sought to be reviewed does not of itself adversely affect complainant but only affects his rights adversely on the contingency of future administrative action', it is not

reviewable. Id., 307 U.S. at page 130, 59 S.Ct. at page 757, 83 L.Ed. 1147. The Court said, 'In view of traditional conceptions of federal judicial power, resort to the courts in these situations is either premature or wholly beyond their province.' ****296**Id., 307 U.S. at page 130, 59 S.Ct. at page 757, 83 L.Ed. 1147. And see United States v. Los Angeles s.l.r. c/o., 273 U.S. 299, 309, 310, 47 S.Ct. 413, 414, 415, 71 L.Ed. 651; Shannahan v. United States, 303 U.S. 596, 58 S.Ct. 732, 82 L.Ed. 1039. These considerations are apposite here. The Commission has no authority to enforce these findings. They are 'the exercise solely of the function of investigation.' United States v. Los Angeles & S.L.R. Co., supra, 273 U.S. at page 310, 47 S.Ct. at page 414, 71 L.Ed. 651. They are only a preliminary, interim step towards possible future action-action not by the Commission but by wholly independent agencies. The outcome of those proceedings may turn on factors other than these findings. These findings may never result in the respondent feeling the pinch of administrative action.

Reversed.

Mr. Justice ROBERTS took no part in the consideration or decision of this case.
Opinion of Mr. Justice BLACK and Mr. Justice MURPHY.
We agree with the Court's opinion and would add nothing to what has been said but for what is patently a wholly gratuitous assertion as to Constitutional law in the dissent of Mr. Justice FRANKFURTER. We refer to the statement that 'Congressional acquiescence to date in the doctrine of Chicago, etc., R. Co. v. Minnesota, supra (134 U.S. 418, 10 S.Ct. 462, 702, 33 L.Ed. 970), may fairly be claimed.' That was the case in which a majority of this Court was finally induced to expand the meaning ***620** of 'due process' so as to give courts power to block efforts of the state and national governments to regulate economic affairs. The present case does not afford a proper occasion to discuss the soundness of that doctrine because, as stated in Mr. Justice FRANKFURTER'S dissent, 'That issue is not here in controversy.' The salutary practice whereby courts do not discuss issues in the abstract applies with peculiar force to Constitutional questions. Since, however, the dissent adverts to a highly controversial due process doctrine and implies its acceptance by Congress, we feel compelled to say that we do not understand that Congress voluntarily has acquiesced in a Constitutional principle of government that courts, rather than legislative bodies, possess final authority over regulation of economic affairs. Even this Court has not always fully embraced that principle, and we wish to repeat that we have never acquiesced in it, and do not now. See Federal Power Commission v. Natural Gas Pipeline Co., 315 U.S. 575, 599-601, 62 S.Ct. 736, 749, 750, 86 L.Ed. 1037.

Mr. Justice REED, dissenting.
This case involves the problem of rate making under the Natural Gas Act. Added importance arises from the obvious fact that the principles stated are generally applicable to all federal agencies which are entrusted with the determination of rates for utilities. Because my views differ somewhat from those of my brethren, it may be of some value to set them out in a summary form.

The Congress may fix utility rates in situations subject to federal control without regard to any standard except the constitutional standards of due process and for taking private property for public use without just compensation. Wilson v. New, 243 U.S. 332, 350, 37 S.Ct. 298, 302, 61 L.Ed. 755, L.R.A.1917E, 938, Ann.Cas.1918A, 1024. A Commission, however, does not have this freedom of action. Its powers are limited not only by the constitutional standards but also by the standards of the delegation. Here the standard added by the Natural Gas Act is that the rate be 'just ***621** and reasonable.' FN1 Section 6 FN2 ****297** throws additional light on the meaning of these words.

FN1 Natural Gas Act, s 4(a), 52 Stat. 821, 822, 15 U.S.C. s 717c(a), 15 U.S.C.A. s 717c(a).

FN2 52 Stat. 821, 824, 15 U.S.C. s 717e, 15 U.S.C.A. s 717e:
'(a) The Commission may investigate and ascertain the actual legitimate cost of the property of every natural-gas company, the depreciation therein, and, when found necessary for rate-making purposes, other facts which bear on the determination of such cost or depreciation and the fair value of such property.
'(b) Every natural-gas company upon request shall file with the Commission an inventory of all or any part of its property and a statement of the original cost thereof, and shall keep the Commission informed regarding the cost of all additions, betterments, extensions, and new construction.'

When the phrase was used by Congress to describe allowable rates, it had relation to something ascertainable. The rates were not left to the whim of the Commission. The rates fixed would produce an annual return and that annual return was to be compared with a theoretical just and reasonable return, all risks considered, on the fair value of the property used and useful in the public service at the time of the determination.

Such an abstract test is not precise. The agency charged with its determination has a wide range before it could properly be said by a court that the agency had disregarded statutory standards or had confiscated the property of the utility for public use. Cf. Chicago, M. & St. P.R. Co. v. Minnesota, 134 U.S. 418, 461-466, 10 S.Ct. 462, 702, 703-705, 33 L.Ed. 970, dissent. This is as Congress intends. Rates are left to an experienced agency particularly competent by training to appraise the amount required.

The decision as to a reasonable return had not been a source of great difficulty, for borrowers and lenders reached such agreements daily in a multitude of situations; and although the determination of fair value had been troublesome, its essentials had been worked out in fairness to investor and consumer by the time of the enactment***622** of this Act. Cf. Los Angeles G. & E. Corp. v. Railroad Comm., 289 U.S. 287, 304 et seq., 53 S.Ct. 637, 643 et seq., 77 L.Ed. 1180. The results were well known to Congress and had that body desired to depart from the traditional concepts of fair value and earnings, it would have stated its intention plainly. Helvering v. Griffiths, 318 U.S. 371, 63 S.Ct. 636.

It was already clear that when rates are in dispute, 'earnings produced by rates do not afford a standard for decision.' 289 U.S. at page 305, 53 S.Ct. at page 644, 77 L.Ed. 1180. Historical cost, prudent investment and reproduction cost [FN3] were all relevant factors in determining fair value. Indeed, disregarding the pioneer investor's risk, if prudent investment and reproduction cost were not distorted by changes in price levels or technology, each of them would produce the same result. The realization from the risk of an investment in a speculative field, such as natural gas utilities, should be reflected in the present fair value. [FN4] The amount of evidence to be admitted on any point was of course in the agency's reasonable discretion, and it was free to give its own weight to these or other factors and to determine from all the evidence its own judgment as to the necessary rates.

> FN3 'Reproduction cost' has been variously defined, but for rate making purposes the most useful sense seems to be, the minimum amount necessary to create at the time of the inquiry a modern plant capable of rendering equivalent service. See I Bonbright, Valuation of Property (1937) 152. Reproduction cost as the cost of building a replica of an obsolescent plant is not of real significance.

'Prudent investment' is not defined by the Court. It may mean the sum originally put in the enterprise, either with or without additional amounts from excess earnings reinvested in the business.

> FN4 It is of no more than bookkeeping significance whether the Commission allows a rate of return commensurate with the risk of the original investment or the lower rate based on current risk and a capitalization reflecting the established earning power of a successful company and the probable cost of duplicating its services. Cf. American T. & T. Co. v. United States, 299 U.S. 232, 57 S.Ct. 170, 81 L.Ed. 142. But the latter is the traditional method.

***623** I agree with the Court in not imposing a rule of prudent investment alone in determining the rate base. This leaves the Commission free, as I understand it, to use any available evidence for its finding of fair value, including both prudent investment and the cost of installing at the present time an efficient system for furnishing the needed utility service.

My disagreement with the Court arises primarily from its view that it makes no ****298** difference how the Commission reached the rate fixed so long as the result is fair and reasonable. For me the statutory command to the Commission is more explicit. Entirely aside from the constitutional problem of whether the Congress could validly delegate its rate making power to the Commission, in toto and without standards, it did legislate in the light of the relation of fair and reasonable to fair value and reasonable return. The Commission must therefore make its findings in observance of that relationship.

The Federal Power Commission did not, as I construe their action, disregard its statutory duty. They heard the evidence relating to historical and reproduction cost and to the reasonable rate of return and they appraised its weight. The evidence of reproduction cost was rejected as unpersuasive, but from the other evidence they found a rate base, which is to me a determination of fair value. On that base the earnings allowed seem fair and reasonable. So far as the Commission went in appraising the property employed in the service, I find nothing in the result which indicates confiscation, unfairness or unreasonableness. Good administration of rate making agencies under this method would avoid undue delay and render revaluations unnecessary except after violent fluctuations of price levels. Rate making under this method has been subjected to criticism. But until Congress changes the standards for the agencies, these rate making bodies should continue the conventional theory of rate ***624** making. It will probably be simpler to improve present methods than to devise new ones.

But a major error, I think was committed in the disregard by the Commission of the investment in exploratory operations and other recognized capital costs. These were not considered by the Commission because they were charged to operating expenses by the company at a time when it was unregulated. Congress did not direct the Commission in rate making to deduct from the rate base capital investment which had been recovered during the unregulated period through excess earnings. In my view this part of the investment should no more have been disregarded in the rate base than any other capital investment which previously had been recovered and paid out in dividends or placed to surplus. Even if prudent investment throughout the life of the property is accepted as the formula for figuring the rate base, it seems to me illogical to throw out the admittedly prudent cost of part of the property because the earnings in the unregulated period had been sufficient to return the prudent cost to the investors over and above a reasonable return. What would the answer be under the theory of the Commission and the Court, if the only prudent investment in this utility had been the seventeen million capital charges which are now disallowed?

For the reasons heretofore stated, I should affirm the action of the Circuit Court of Appeals in returning the proceeding to the Commission for further consideration and should direct the Commission to accept the disallowed capital investment in determining the fair value for rate making purposes.

Mr. Justice FRANKFURTER, dissenting.
My brother JACKSON has analyzed with particularity the economic and social aspects of natural gas as well as ***625** the difficulties which led to the enactment of the Natural Gas Act, especially those arising out of the abortive attempts of States to regulate natural gas utilities. The Natural Gas Act of 1938 should receive application in the light of this analysis, and Mr. Justice JACKSON has, I believe, drawn relevant inferences regarding the duty of the Federal Power Commission in fixing natural gas rates. His exposition seems to me unanswered, and I shall say only a few words to emphasize my basic agreement with him.

For our society the needs that are met by public utilities are as truly public services as the traditional governmental functions of police and justice. They are not less so when these services are rendered by private enterprise under governmental regulation. Who ultimately determines the ways of regulation, is the decisive aspect in the public supervision of privately-owned utilities. Foreshadowed nearly sixty years ago, Railroad Commission Cases (Stone v. Farmers' Loan & Trust Co.), 116 U.S. 307, 331, 6 S.Ct. 334, 344, 388, 1191, 29 L.Ed. 636, it was decided more than fifty ****299** years ago that the final say under the Constitution lies with the judiciary and not the legislature. Chicago, etc., R. Co. v. Minnesota , 134 U.S. 418, 10 S.Ct. 462, 702, 33 L.Ed. 970.

While legal issues touching the proper distribution of governmental powers under the Constitution may always be raised, Congressional acquiescence to date in the doctrine of Chicago, etc., R. Co. v. Minnesota, supra, may fairly be claimed. But in any event that issue is not here in controversy. As pointed out in the opinions of my brethren, Congress has given only limited authority to the Federal Power Commission and made the exercise of that authority subject to judicial review. The Commission is authorized to fix rates chargeable for natural gas. But the rates that it can fix must be 'just and reasonable'. s 5 of the Natural Gas Act, 15 U.S.C. s 717d, 15 U.S.C.A. s 717d. Instead of making the Commission's rate determinations final, Congress***626** specifically provided for court review of such orders. To be sure, 'the finding of the Commission as to the facts, if supported by substantial evidence' was made 'conclusive', s 19 of the Act, 15 U.S.C. s 717r; 15 U.S.C.A. s 717r. But obedience of the requirement of Congress that rates be 'just and reasonable' is not an issue of fact of which the Commission's own determination is conclusive. Otherwise, there would be nothing for a court to review except questions of compliance with the procedural provisions of the Natural Gas Act. Congress might have seen fit so to cast its legislation. But it has not done so. It has committed to the administration of the Federal Power Commission the duty of applying standards of fair dealing and of reasonableness relevant to the purposes expressed by the Natural Gas Act. The requirement that rates must be 'just and reasonable' means just and reasonable in relation to appropriate standards. Otherwise Congress would have directed the Commission to fix such rates as in the judgment of the Commission are just and reasonable; it would not have also provided that such determinations by the Commission are subject to court review.

To what sources then are the Commission and the courts to go for ascertaining the standards relevant to the regulation of natural gas rates? It is at this point that Mr. Justice JACKSON'S analysis seems to me pertinent. There appear to be two alternatives. Either the fixing of natural gas rates must be left to the unguided discretion of the Commission so long as the rates it fixes do not reveal a glaringly had prophecy of the ability of a regulated utility to continue its service in the future. Or the Commission's rate orders must be founded on due consideration of all the elements of the public interest which the production and distribution of natural gas involve just because it is natural gas. These elements are reflected in the Natural Gas Act, if that Act be applied as an entirety. See, for ***627** instance, ss 4(a)(b)(c)(d), 6, and 11, 15 U.S.C. ss 717c(a)(b)(c)(d), 717e, and 717j, 15 U.S.C.A. ss 717c(a-d), 717e, 717j. Of course the statute is not concerned with abstract theories of ratemaking. But its very foundation is the 'public interest', and the public interest is a texture of multiple strands. It includes more than contemporary investors and contemporary consumers. The needs to be served are not restricted to immediacy, and social as well as economic costs must be counted.

It will not do to say that it must all be left to the skill of experts. Expertise is a rational process and a rational process implies expressed reasons for judgment. It will little advance the public interest to substitute for the hodge-podge of the rule in Smyth v. Ames, 169 U.S. 466, 18 S.Ct. 418, 42 L.Ed. 819, an encouragement of conscious obscurity or confusion in reaching a result, on the assumption that so long as the result appears harmless its basis is irrelevant. That may be an appropriate attitude when state action is challenged as unconstitutional. Cf. Driscoll v. Edison Light & Power Co., 307 U.S. 104, 59 S.Ct. 715, 83 L.Ed. 1134. But it is not to be assumed that it was the design of Congress to make the accommodation of the conflicting interests exposed in Mr. Justice JACKSON'S opinion the occasion for a blind clash of forces or a partial assessment of relevant factors, either before the Commission or here.

The objection to the Commission's action is not that the rates it granted were too low but that the range of its vision was too narrow. And since the issues before the Commission involved no less than the ****300** total public interest, the proceedings before it should not be judged by narrow conceptions of common law pleading. And so I conclude that the case should be returned to the Commission. In order to enable this Court to discharge its duty of reviewing the Commission's order, the Commission should set forth with explicitness the criteria by which it is guided ***628** in determining that rates are 'just and reasonable', and it should determine the public interest that is in its keeping in the perspective of the considerations set forth by Mr. Justice JACKSON.

By Mr. Justice JACKSON.

Certainly the theory of the court below that ties rate-making to the fair-value-reproduction-cost formula should be overruled as in conflict with Federal Power Commission v. Natural Gas Pipeline Co. [FN1] But the case should, I think, be the occasion for reconsideration of our rate-making doctrine as applied to natural gas and should be returned to the Commission for further consideration in the light thereof.

FN1 315 U.S. 575, 62 S.Ct. 736, 86 L.Ed. 1037.

The Commission appears to have understood the effect of the two opinions in the Pipeline case to be at least authority and perhaps direction to fix natural gas rates by exclusive application of the 'prudent investment' rate base theory. This has no warrant in the opinion of the Chief Justice for the Court, however, which released the Commission from subservience to 'any single formula or combination of formulas' provided its order, 'viewed in its entirety, produces no arbitrary result.' 315 U.S. at page 586, 62 S.Ct. at page 743, 86 L.Ed. 1037. The minority opinion I understood to advocate the 'prudent investment' theory as a sufficient guide in a natural gas case. The view was expressed in the court below that since this opinion was not expressly controverted it must have been approved. [FN2] I disclaim this imputed***629** approval with some particularity, because I attach importance at the very beginning of federal regulation of the natural gas industry to approaching it as the performance of economic functions, not as the performance of legalistic rituals.

FN2 Judge Dobie, dissenting below, pointed out that the majority opinion in the Pipeline case 'contains no express discussion of the Prudent Investment Theory' and that the concurring opinion contained a clear one, and said, 'It is difficult for me to believe that the majority of the Supreme Court, believing otherwise, would leave such a statement unchallenged.' (134 F.2d 287, 312.) The fact that two other Justices had as matter of record in our books long opposed the reproduction cost theory of rate bases and had commented favorably on the prudent investment theory may have influenced that conclusion. See opinion of Mr. Justice Frankfurter in Driscoll v. Edison Light & Power Co., 307 U.S. 104, 122, 59 S.Ct. 715, 724, 83 L.Ed. 1134, and my brief as Solicitor General in that case. It should be noted, however, that these statements were made, not in a natural gas case, but in an electric power case-a very important distinction, as I shall try to make plain.

I.

Solutions of these cases must consider eccentricities of the industry which gives rise to them and also to the Act of Congress by which they are governed.

The heart of this problem is the elusive, exhaustible, and irreplaceable nature of natural gas itself. Given sufficient money, we can produce any desired amount of railroad, bus, or steamship transportation, or communications facilities, or capacity for generation of electric energy, or for the manufacture of gas of a kind. In the service of such utilities one customer has little concern with the amount taken by another, one's waste will not deprive another, a volume of service and be created equal to demand, and today's demands will not exhaust or lessen capacity to serve tomorrow. But the wealth of Midas and the wit of man cannot produce or reproduce a natural gas field. We cannot even reproduce the gas, for our manufactured product has only about half the heating value per unit of nature's own. [FN3]

FN3 Natural gas from the Appalachian field averages about 1050 to 1150 B.T.U. content, while by-product manufactured gas is about 530 to 540. Moody's Manual of Public Utilities (1943) 1350; Youngberg, Natural Gas (1930) 7.

****301** Natural gas in some quantity is produced in twenty-four states. It is consumed in only thirty-five states, and is ***630** available only to about 7,600,000 consumers. [FN4] Its availability has been more localized than that of any other utility service because it has depended more on the caprice of nature.

FN4 Sen.Rep. No. 1162, 75th Cong., 1st Sess., 2.

The supply of the Hope Company is drawn from that old and rich and vanishing field that flanks the Appalachian mountains. Its center of production is Pennsylvania and West Virginia, with a fringe of lesser production in New York, Ohio, Kentucky, Tennessee, and the north end of Alabama. Oil was discovered in commercial quantities at a depth of only 69 1/2 feet near Titusville, Pennsylvania, in 1859. Its value then was about $16 per barrel. [FN5] The oil branch of the petroleum industry went forward at once, and with unprecedented speed. The area productive of oil and gas was roughed out by the drilling of over 19,000 'wildcat' wells, estimated to have cost over $222,000,000. Of these, over 18,000 or 94.9 per cent, were 'dry holes.' About five per cent, or 990 wells, made discoveries of commercial importance, 767 of them resulting chiefly in oil and 223 in gas only. [FN6] Prospecting for many years was a search for oil, and to strike gas was a misfortune. Waste during this period and even later is appalling. Gas was regarded as having no commercial value until about 1882, in which year the total yield was valued only at about $75,000. [FN7] Since then, contrary to oil, which has become cheaper gas in this field has pretty steadily advanced in price.

FN5 Arnold and Kemnitzer, Petroleum in the United States and Possessions (1931) 78.

FN6. Id. at 62-63.

FN7. Id. at 61.

While for many years natural gas had been distributed on a small scale for lighting, [FN8] its acceptance was slow, ***631** facilities for its utilization were primitive, and not until 1885 did it take on the appearance of a substantial industry. [FN9] Soon monopoly of production or markets developed. [FN10] To get gas from the mountain country, where it was largely found, to centers of population, where it was in demand, required very large investment. By ownership of such facilities a few corporate systems, each including several companies, controlled access to markets. Their purchases became the dominating factor in giving a market value to gas produced by many small operators. Hope is the market for over 300 such operators. By 1928 natural gas in the Appalachian field commanded an average price of 21.1 cents per m.c.f. at points of production and was bringing 45.7 cents at points of consumption. [FN11] The companies which controlled markets, however, did not rely on gas purchases alone. They acquired and held in fee or leasehold great acreage in territory proved by 'wildcat' drilling. These large marketing system companies as well as many small independent owners and operators have carried on the commercial development of proved territory. The development risks appear from the estimate that up to 1928, 312,318 proved area wells had been sunk in the Appalachian field of which 48,962, or 15.7 per cent, failed to produce oil or gas in commercial quantity. [FN12]

FN8 At Fredonia, New York, in 1821, natural gas was conveyed from a shallow well to some thirty people. The lighthouse at Barcelona Harbor, near what is now Westfield, New York, was at about that time and for many years afterward lighted by gas that issued from a crevice. Report on Utility Corporations by Federal Trade Commission, Sen.Doc. 92, Pt. 84-A, 70th Cong., 1st Sess., 8-9.

FN9 In that year Pennsylvania enacted 'An Act to provide for the incorporation and regulation of natural gas companies.' Penn.Laws 1885, No. 32, 15 P.S. s 1981 et seq.

FN10 See Steptoe and Hoffheimer's Memorandum for Governor Cornwell of West Virginia (1917) 25 West Virginia Law Quarterly 257; see also Report on Utility Corporations by

Federal Trade Commission, Sen.Doc. No. 92, Pt. 84-A, 70th Cong., 1st Sess.

FN11 Arnold and Kemnitzer, Petroleum in the United States and Possessions (1931) 73.

FN12. Id. at 63.

***632** With the source of supply thus tapped to serve centers of large demand, like Pittsburgh, Buffalo, Cleveland, Youngstown, Akron, and other industrial communities, the distribution of natural gas fast became big business. Its advantages as a ****302** fuel and its price commended it, and the business yielded a handsome return. All was merry and the goose hung high for consumers and gas companies alike until about the time of the first. World War. Almost unnoticed by the consuming public, the whole Appalachian field passed its peak of production and started to decline. Pennsylvania, which to 1928 had given off about 38 per cent of the natural gas from this field, had its peak in 1905; Ohio, which had produced 14 per cent, had its peak in 1915; and West Virginia, greatest producer of all, with 45 per cent to its credit, reached its peak in 1917. FN13

FN13. Id. at 64.

Western New York and Eastern Ohio, on the fringe of the field, had some production but relied heavily on imports from Pennsylvania and West Virginia. Pennsylvania, a producing and exporting state, was a heavy consumer and supplemented her production with imports from West Virginia. West Virginia was a consuming state, but the lion's share of her production was exported. Thus the interest of the states in the North Appalachian supply was in conflict.

Competition among localities to share in the failing supply and the helplessness of state and local authorities in the presence of state lines and corporate complexities is a part of the background of federal intervention in the industry. FN14 West Virginia took the boldest measure. It legislated a priority in its entire production in favor of its own inhabitants. That was frustrated by an injunction***633** from this Court. FN15 Throughout the region clashes in the courts and conflicting decisions evidenced public anxiety and confusion. It was held that the New York Public Service Commission did not have power to classify consumers and restrict their use of gas. FN16 That Commission held that a company could not abandon a part of its territory and still serve the rest. FN17 Some courts admonished the companies to take action to protect consumers. FN18 Several courts held that companies, regardless of failing supply, must continue to take on customers, but such compulsory additions were finally held to be within the Public Service Commission's discretion. FN19 There were attempts to throw up franchises and quit the service, and municipalities resorted to the courts with conflicting results. FN20 Public service commissions of consuming states were handicapped, for they had no control of the supply. FN21

FN14 See Report on Utility Corporations by Federal Trade Commission, Sen.Doc. No. 92, Pt. 84-A, 70th Cong., 1st Sess.

FN15 Commonwealth of Pennsylvania v. West Virginia, 262 U.S. 553, 43 S.Ct. 658, 67 L.Ed. 1117, 32 A.L.R. 300. For conditions there which provoked this legislation, see 25 West Virginia Law Quarterly 257.

FN16 People ex rel. Pavilion Natural Gas Co. v. Public Service Commission, 188 App.Div. 36, 176 N.Y.S. 163.

FN17 Village of Falconer v. Pennsylvania Gas Company, 17 State Department Reports, N.Y., 407.

FN18 See, for example, Public Service Commission v. Iroquois Natural Gas Co., 108 Misc. 696, 178 N.Y.S. 24; Park Abbott Realty Co. v. Iroquois Natural Gas Co., 102 Misc. 266, 168 N.Y.S. 673; Public Service Commission v. Iroquois Natural Gas Co., 189 App.Div. 545, 179 N.Y.S. 230.

FN19 People ex rel. Pennsylvania Gas Co. v. Public Service Commission, 196 App.Div. 514, 189 N.Y.S. 478.

FN20 East Ohio Gas Co. v. Akron, 81 Ohio St. 33, 90 N.E. 40, 26 L.R.A., N.S., 92, 18 Ann.Cas. 332; Village of New-comerstown v. Consolidated Gas Co., 100 Ohio St. 494, 127 N.E. 414; Gress v. Village of Ft. Laramie, 100 Ohio St. 35, 125 N.E. 112, 8 A.L.R. 242; City of Jamestown v. Pennsylvania Gas Co., D.C., 263 F. 437; Id., D.C., 264 F. 1009. See, also, United Fuel Gas Co. v. Railroad Commission, 278 U.S. 300, 308, 49 S.Ct. 150, 152, 73 L.Ed. 390.

FN21 The New York Public Service Commission said: ‘While the transportation of natural gas through pipe lines from one state to another state is interstate commerce * * *, Congress has not taken over the regulation of that particular industry. Indeed, it has expressly excepted it from the operation of the Interstate Commerce Commissions Law (Interstate Commerce Commissions Law, section 1). It is quite clear, therefore, that this Commission can not require a Pennsylvania corporation producing gas in Pennsylvania to transport it and deliver it in the State of New York, and that the Interstate Commerce Commission is likewise powerless. If there exists such a power, and it seems that there does, it is a power vested in Congress and by it not yet exercised. There is no available source of supply for the Crystal City Company at present except through purchasing from the Porter Gas Company. It is possible that this Commission might fix a price at which the Potter Gas Company should sell if it sold at all, but as the Commission can not require it to supply gas in the State of New York, the exercise of such a power to fix the price, if such power exists, would merely say, sell at this price or keep out of the State.' Lane v. Crystal City Gas Co., 8 New York Public Service Comm.Reports, Second District, 210, 212.

****303 *634** Shortages during World War I occasioned the first intervention in the natural gas industry by the Federal Government. Under Proclamation of President Wilson the United States Fuel Administrator took control, stopped extensions, classified consumers and established a priority for domestic over industrial use. FN22 After the war federal control was abandoned. Some cities once served with natural gas became dependent upon mixed gas of reduced heating value and relatively higher price. FN23

FN22 Proclamation by the President of September 16, 1918; Rules and Regulations of H. A. Garfield, Fuel Administrator, September 24, 1918.

FN23 For example, the Iroquois Gas Corporation which formerly served Buffalo, New York, with natural gas ranging from 1050 to 1150 b.t.u. per cu. ft., now mixes a by-product gas of between 530 and 540 b.t.u. in proportions to provide a mixed gas of about 900 b.t.u. per cu. ft. For space heating or water heating its charges range from 65 cents for the first m.c.f. per month to 55 cents for all above 25 m.c.f. per month. Moody's Manual of Public Utilities (1943) 1350.

Utilization of natural gas of highest social as well as economic return is domestic use for cooking and water ***635** heating, followed closely by use for space heating in homes. This is the true public utility aspect of the enterprise, and its preservation should be the first concern of regulation. Gas does the family cooking cheaper than any other fuel. FN24 But its advantages do not end with dollars and cents cost. It is delivered without interruption at the meter as needed and is paid for after it is used. No money is tied up in a supply, and no space is used for storage. It requires no handling, creates no dust, and leaves no ash. It responds to thermostatic control. It ignites easily and immediately develops its maximum heating capacity. These incidental advantages make domestic life more liveable.

FN24 The United States Fuel Administration made the following cooking value comparisons, based on tests made in the Department of Home Economics of Ohio State University:

Natural gas at 1.12 per M. is equivalent to coal at $6.50 per ton.

Natural gas at 2.00 per M. is equivalent to gasoline at 27¢ per gal.

Natural gas at 2.20 per M. is equivalent to electricity at 3¢ per k.w.h.

Natural gas at 2.40 per M. is equivalent to coal oil at 15¢ per gal.

Use and Conservation of Natural Gas, issued by U.S. Fuel Administration (1918) 5.

Industrial use is induced less by these qualities than by low cost in competition with other fuels. Of the gas exported from West Virginia by the Hope Company a very substantial part is used by industries. This wholesale use speeds exhaustion of supply and displaces other fuels. Coal miners and the coal industry, a large part of whose costs are wages, have complained of unfair competition from low-priced industrial gas produced with relatively little labor cost. FN25

FN25 See Brief on Behalf jof Legislation Imposing an Excise Tax on Natural Gas, submitted to N.R.A. by the United Mine Workers of America and the National Coal Association.

Gas rate structures generally have favored industrial users. In 1932, in Ohio, the average yield on gas for domestic consumption was 62.1 cents per m.c.f. and on industrial,***636** 38.7. In Pennsylvania, the figures were 62.9 against 31.7. West Virginia showed the least spread, domestic consumers paying 36.6 cents; and industrial, 27.7. FN26 Although this spread is less than ****304** in other parts of the United States, FN27 it can hardly be said to be self-justifying. It certainly is a very great factor in hastening decline of the natural gas supply.

FN26 Brief of National Gas Association and United Mine Workers, supra, note 26, pp. 35, 36, compiled from Bureau of Mines Reports.

FN27 From the source quoted in the preceding note the spread elsewhere is shown to be:

State.	Industrial	Domestic
Illinois.	29.2	1.678
Louisiana.	10.4	59.7
Oklahoma.	11.2	41.5
Texas.	13.1	59.7
Alabama.	17.8	1.227
Georgia.	22.9	1.043

About the time of World War I there were occasional and short-lived efforts by some hard-pressed companies to reverse this discrimination and adopt graduated rates, giving a low rate to quantities adequate for domestic use and graduating it upward to discourage industrial use. FN28 ***637** These rates met opposition from industrial sources, of course, and since diminished revenues from industrial sources tended to increase the domestic price, they met little popular or commission favor. The fact is that neither the gas companies nor the consumers nor local regulatory bodies can be depended upon to conserve gas. Unless federal regulation will take account of conservation, its efforts seem, as in this case, actually to constitute a new threat to the life of the Appalachian supply.

FN28 In Corning, New York, rates were initiated by the Crystal City Gas Company as follows: 70¢ for the first 5,000 cu. ft. per month; 80¢ from 5,000 to 12,000; $1 for all over 12,000. The Public Service Commission rejected these rates and fixed a flat rate of 58¢ per m.c.f. Lane v. Crystal City Gas Co., 8 New York Public Service Comm. Reports, Second District, 210.
The Pennsylvania Gas Company (National Fuel Gas Company group) also attempted a sliding scale rate for New York consumers, net per month as follows: First 5,000 feet, 35¢ ; second 5,000 feet, 45¢ ; third 5,000 feet, 50¢ ; all above 15,000, 55¢ . This was eventually abandoned, however. The company's present scale in Pennsylvania appears to be reversed to the following net monthly rate; first 3 m.c.f., 75¢ ; next 4 m.c.f., 60¢ ; next 8 m.c.f., 55¢ ; over 15 m.c.f., 50¢ . Moody's Manual of Public Utilities (1943) 1350. In New York it now serves a mixed gas.
For a study of effect of sliding scale rates in reducing consumption see 11 Proceedings of Natural Gas Association of America (1919) 287.

II.

Congress in 1938 decided upon federal regulation of the industry. It did so after an exhaustive investigation of all aspects including failing supply and competition for the use of natural gas intensified by growing scarcity. FN29 Pipelines from the Appalachian area to markets were in the control of a handful of holding company systems. FN30 This created a highly concentrated control of the producers' market and of the consumers' supplies. While holding companies dominated both production and distribution they segregated those activities in separate ***638** subsidiaries, FN31 the effect of which, if not the purpose, was to isolate ****305** some end of the business from the reach of any one state commission. The cost of natural gas to consumers moved steadily upwards over the years, out of proportion to prices of oil, which, except for the element of competition, is produced under somewhat comparable conditions. The public came to feel that the companies were exploiting the growing scarcity of local gas. The problems of this region had much to do with creating the demand for federal regulation.

FN29 See Report on Utility Corporations by Federal Trade Commission, Sen. Doc. 92, Pt. 84-A, 70th Cong., 1st Sess.

FN30 Four holding company systems control over 55 per cent of all natural gas transmission lines in the United States. They are Columbia Gas and Electric Corporation, Cities Service Co., Electric Bond and Share Co., and Standard Oil Co. of New Jersey. Columbia alone controls nearly 25 per cent, and fifteen companies account for over 80 per cent of the total. Report on Utility Corporations by Federal Trade Commission, Sen. Doc. 92, Pt. 84-A, 70th Cong., 1st Sess., 28.
In 1915, so it was reported to the Governor of West

Virginia, 87 per cent of the total gas production of that state was under control of eight companies. Steptoe and Hoffheimer, Legislative Regulation of Natural Gas Supply in West Virginia, 17 West Virginia Law Quarterly 257, 260. Of these, three were subsidiaries of the Columbia system and others were subsidiaries of larger systems. In view of inter-system sales and interlocking interests it may be doubted whether there is much real competition among these companies.

FN31 This pattern with its effects on local regulatory efforts will be observed in our decisions. See United Fuel Gas Co. v. Railroad Commission, 278 U.S. 300, 49 S.Ct. 150, 73 L.Ed. 390; United Fuel Gas Co. v. Public Service Commission, 278 U.S. 322, 49 S.Ct. 157, 73 L.Ed. 402; Dayton Power & Light v. Public Utilities Commission, 292 U.S. 290, 54 S.Ct. 647, 78 L.Ed. 1267; Columbus Gas & Fuel Co. v. Public Utilities Commission, 292 U.S. 398, 54 S.Ct. 763, 78 L.Ed. 1327, 91 A.L.R. 1403, and the present case.

The Natural Gas Act declared the natural gas business to be ‘affected with a public interest,’ and its regulation ‘necessary in the public interest.’ [FN32] Originally, and at the time this proceeding was commenced and tried, it also declared ‘the intention of Congress that natural gas shall be sold in interstate commerce for resale for ultimate public consumption for domestic, commercial, industrial, or any other use at the lowest possible reasonable rate consistent with the maintenance of adequate service in the public interest.’ [FN33] While this was later dropped, there is nothing to indicate that it was not and is not still an accurate statement of purpose of the Act. Extension or improvement of facilities may be ordered when ‘necessary or desirable in the public interest,’ abandonment of facilities may be ordered when the supply is ‘depleted to the extent that the continuance of service is unwarranted, or that the present or future public convenience or necessity ***639** permit’ abandonment and certain extensions can only be made on finding of ‘the present or future public convenience and necessity.' [FN34] The Commission is required to take account of the ultimate use of the gas. Thus it is given power to suspend new schedules as to rates, charges, and classification of services except where the schedules are for the sale of gas ‘for resale for industrial use only,' [FN35] which gives the companies greater freedom to increase rates on industrial gas than on domestic gas. More particularly, the Act expressly forbids any undue preference or advantage to any person or ‘any unreasonable difference in rates * * * either as between localities or as between classes of service.' [FN36] And the power of the Commission expressly includes that to determine the ‘just and reasonable rate, charge, classification, rule, regulation, practice, or contract to be thereafter observed and in force.' [FN37]

FN32 15 U.S.C. s 717(a), 15 U.S.C.A. s 717(a). (Italics supplied throughout this paragraph.)

FN33 s 7(c), 52 Stat. 825, 15 U.S.C.A. s 717f(c).

FN34 15 U.S.C. s 717f, 15 U.S.C.A. s 717f.

FN35 Id., s 717c(e).

FN36 Id., s 717c(b).

FN37 Id., s 717d(a).

In view of the Court's opinion that the Commission in administering the Act may ignore discrimination, it is interesting that in reporting this Bill both the Senate and the House Committees on Interstate Commerce pointed out that in 1934, on a nationwide average the price of natural gas per m.c.f. was 74.6 cents for domestic use, 49.6 cents for commercial use, and 16.9 for industrial use. [FN38] I am not ready to think that supporters of a bill called attention to the striking fact that householders were being charged five times as much for their gas as industrial users only as a situation which the Bill would do nothing to remedy. On the other hand the Act gave to the Commission what the Court aptly describes as ‘broad powers of regulation.'

FN38 Sen. Rep. No. 1162, 75th Cong., 1st Sess. 2.

***640** III.

This proceeding was initiated by the Cities of Cleveland and Akron. They alleged that the price charged by Hope for natural gas ‘for resale to domestic, commercial and small industrial consumers in Cleveland and elsewhere is excessive, unjust, unreasonable, greatly in excess of the price charged by Hope to nonaffiliated companies at wholesale for resale to domestic, commercial and small industrial consumers, and greatly in excess of the price charged by Hope to East Ohio for resale to certain favored industrial consumers in Ohio, and therefore is further unduly discriminatory between consumers and between classes of service’ (italics supplied). The company answered admitting differences in prices to affiliated and nonaffiliated companies and justifying them by differences in conditions of delivery. ****306** As to the allegation that the contract price is ‘greatly in excess of the price charged by Hope to East Ohio for resale to certain favored industrial consumers in Ohio,' Hope did not deny a price differential, but alleged that industrial gas was not sold to 'favored consumers' but was sold under contract and schedules filed with and approved by the Public Utilities Commission of Ohio, and that certain conditions of delivery made it not 'unduly discriminatory.'

The record shows that in 1940 Hope delivered for industrial consumption 36,523,792 m.c.f. and for domestic and commercial consumption, 50,343,652 m.c.f. I find no separate figure for domestic consumption. It served 43,767 domestic consumers directly, 511,521 through the East Ohio Gas Company, and 154,043 through the Peoples Natural Gas Company, both affiliates owned by the same parent. Its special contracts for industrial consumption, so far as appear, are confined to about a dozen big industries.

***641** Hope is responsible for discrimination as exists in favor of these few industrial consumers. It controls both the resale price and use of industrial gas by virtue of the very interstate sales contracts over which the Commission is exercising its jurisdiction.

Hope's contract with East Ohio Company is an example. Hope agrees to deliver, and the Ohio Company to take, '(a) all natural gas requisite for the supply of the domestic consumers of the Ohio Company; (b) such amounts of natural gas as may be requisite to fulfill contracts made with the consent and approval of the Hope Company by the Ohio Company, or companies which it supplies with natural gas, for the sale of gas upon special terms and conditions for manufacturing purposes.' The Ohio company is required to read domestic customers' meters once a month and meters of industrial customers daily and to furnish all meter readings to Hope. The Hope Company is to have access to meters of all consumers and to all of the Ohio Company's accounts. The domestic consumers of the Ohio Company are to be fully supplied in preference to consumers purchasing for manufacturing purposes and 'Hope Company can be required to supply gas to be used for manufacturing purposes only where the same is sold under special contracts which have first been submitted to and approved in writing by the Hope Company and which expressly provide that natural gas will be supplied thereunder only in so far as the same is not necessary to meet the requirements of domestic consumers supplied through pipe lines of the Ohio Company.' This basic contract was supplemented from time to time, chiefly as to price. The last amendment was in a letter from Hope to East Ohio in 1937. It contained a special discount on industrial gas and a schedule of special industrial contracts, Hope reserving the right to make eliminations therefrom and agreeing that others might be added from time to ***642** time with its approval in writing. It said, 'It is believed that the price concessions contained in this letter, while not based on our costs, are under certain conditions, to our mutual advantage in maintaining and building up the volumes of gas sold by us (italics supplied).' FN39

FN39 The list of East Ohio Gas Company's special industrial contracts thus expressly under Hope's control and their demands are as follows:

****307** The Commission took no note of the charges of discrimination and made no disposition of the issue tendered on this point. It ordered a flat reduction in the price per m.c.f. of all gas delivered by Hope in interstate commerce. It made no limitation, condition, or provision as to what classes of consumers should get the benefit of the reduction. While the cities have accepted and are defending the reduction, it is my view that the discrimination of which they have complained is perpetuated and increased by the order of the Commission and that it violates the Act in so doing.

The Commission's opinion aptly characterizes its entire objective by saying that 'bona fide investment figures now become all-important in the regulation of rates.' It should be noted that the all-importance of this theory is not the result of any instruction from Congress. When the Bill to regulate gas was first before Congress it contained***643** the following: 'In determining just and reasonable rates the Commission shall fix such rate as will allow a fair return upon the actual legitimate prudent cost of the property used and useful for the service in question.' H.R. 5423, 74th Cong., 1st Sess. Title III, s 312(c). Congress rejected this language. See H.R. 5423, s 213 (211(c)), and H.R. Rep. No. 1318, 74th Cong., 1st Sess. 30.

The Commission contends nevertheless that the 'all important' formula for finding a rate base is that of prudent investment. But it excluded from the investment base an amount actually and admittedly invested of some $17,000,000. It did so because it says that the Company recouped these expenditures from customers before the days of regulation from earnings above a fair return. But it would not apply all of such 'excess earnings' to reduce the rate base as one of the Commissioners suggested. The reason for applying excess earnings to reduce the investment base roughly from $69,000,000 to $52,000,000 but refusing to apply them to reduce it from that to some $18,000,000 is not found in a difference in the character of the earnings or in their reinvestment. The reason assigned is a difference in bookkeeping treatment many years before the Company was subject to regulation. The $17,000,000, reinvested chiefly in well drilling, was treated on the books as expense. (The Commission now requires that drilling costs be carried to capital account.) The allowed rate base thus actually was determined by the Company's bookkeeping, not its investment. This attributes a significance to formal classification in account keeping that seems inconsistent with rational rate regulation. FN40 Of ***644** course, the ****308** Commission would not and should not allow a rate base to be inflated by bookkeeping which had improperly capitalized expenses. I have doubts about resting public regulation upon any rule that is to be used or not depending on which side it favors.

FN40 To make a fetish of mere accounting is to shield from examination the deeper causes, forces, movements, and conditions which should govern rates. Even as a recording of current transactions, bookkeeping is hardly an exact science. As a representation of the condition and trend of a business, it uses symbols of certainty to express values that actually are in constant flux. It may be said that in commercial or investment banking or any business extending credit success depends on knowing what not to believe in accounting. Few concerns go into bankruptcy or reorganization whose books do not show them solvent and often even profitable. If one cannot rely on accountancy accurately to disclose past or current conditions of a business, the fallacy of using it as a sole guide to future price policy ought to be apparent. However, our quest for certitude is so ardent that we pay an irrational reverence to a technique which uses symbols of certainty, even though experience again and again warns us that they are delusive. Few writers have ventured to challenge this American idolatry, but see Hamilton, Cost as a standard for Price, 4 Law and Contemporary Problems 321, 323-25. He observes that ‘As the apostle would put it, accountancy is all things to all men. * * * Its purpose determines the character of a system of accounts.’ He analyzes the hypothetical character of accounting and says ‘It was no eternal mold for pecuniary verities handed down from on high. It was-like logic or algebra, or the device of analogy in the law-an ingenious contrivance of the human mind to serve a limited and practical purpose.’ ‘Accountancy is far from being a pecuniary expression of all that is industrial reality. It is an instrument, highly selective in its application, in the service of the institution of money making.’ As to capital account he observes ‘In an enterprise in lusty competition with others of its kind, survival is the thing and the system of accounts has its focus in solvency. * * * Accordingly depreciation, obsolescence, and other factors which carry no immediate threat are matters of lesser concern and the capital account is likely to be regarded as a secondary phenomenon. * * * But in an enterprise, such as a public utility, where continued survival seems assured, solvency is likely to be taken for granted. * * * A persistent and ingenious attention is likely to be directed not so much to securing the upkeep of the physical property as to making it certain that capitalization fails in not one whit to give full recognition to every item that should go into the account.'

***645** The Company on the other hand, has not put its gas fields into its calculations on the present-value basis, although that, it contends, is the only lawful rule for finding a rate base. To do so would result in a rate higher than it has charged or proposes as a matter of good business to charge.

The case before us demonstrates the lack of rational relationship between conventional rate-base formulas and natural gas production and the extremities to which regulating bodies are brought by the effort to rationalize them. The Commission and the Company each stands on a different theory, and neither ventures to carry its theory to logical conclusion as applied to gas fields.

IV.

This order is under judicial review not because we interpose constitutional theories between a State and the business it seeks to regulate, but because Congress put upon the federal courts a duty toward administration of a new federal regulatory Act. If we are to hold that a given rate is reasonable just because the Commission has said it was reasonable, review becomes a costly, time-consuming pageant of no practical value to anyone. If on the other hand we are to bring judgment of our own to the task, we should for the guidance of the regulators and the regulated reveal something of the philosophy, be it legal or economic or social, which guides us. We need not be slaves to a formula but unless we can point out a rational way of reaching our conclusions they can only be accepted as resting on intuition or predilection. I must admit that I possess no instinct jby which to know the ‘reasonable’ from the ‘unreasonable’ in prices and must seek some conscious design for decision.

The Court sustains this order as reasonable, but what makes it so or what could possibly make it otherwise,

***646** I cannot learn. It holds that: 'it is the result reached not the method employed which is controlling'; 'the fact that the method employed to reach that result may contain infirmities is not then important' and it is not 'important to this case to determine the various permissible ways in which any rate base on which the return is computed might be arrived at.' The Court does lean somewhat on considerations of capitalization and dividend history and requirements for dividends on outstanding stock. But I can give no real weight to that for it is generally and I think deservedly in discredit as any guide in rate cases. FN41

FN41 See 2 Bonbright, Valuation of Property (1937) 1112.

Our books already contain so much talk of methods of rationalizing rates that we must appear ambiguous if we announce results without our working methods. We are confronted with regulation of a unique type of enterprise which I think requires considered rejection of much conventional utility doctrine and adoption of concepts of 'just and reasonable' rates and practices and of the 'public interest' that will take account of the peculiarities of the business.

The Court rejects the suggestions of this opinion. It says that the Committees in reporting the bill which became the Act said it provided 'for regulation along recognized and more or less standardized lines' and that there was 'nothing novel in its provisions.' So saying it sustains a rate calculated on a novel variation of a rate base theory which itself had at the time of enactment of the legislation been recognized only in dissenting opinions. Our difference seems to be between unconscious innovation, FN42 and the purposeful ****309** and deliberate innovation I ***647** would make to meet the necessities of regulating the industry before us.

FN42 Bonbright says, '* * * the vice of traditional law lies, not in its adoption of excessively rigid concepts of value and rules of valuation, but rather in its tendency to permit shifts in meaning that are inept, or else that are ill-defined because the judges that make them will not openly admit that they are doing so.' Id., 1170.

Hope's business has two components of quite divergent character. One, while not a conventional common-carrier undertaking, is essentially a transportation enterprise consisting of conveying gas from where it is produced to point of delivery to the buyer. This is a relatively routine operation not differing substantially from many other utility operations. The service is produced by an investment in compression and transmission facilities. Its risks are those of investing in a tested means of conveying a discovered supply of gas to a known market. A rate base calculated on the prudent investment formula would seem a reasonably satisfactory measure for fixing a return from that branch of the business whose service is roughly proportionate to the capital invested. But it has other consequences which must not be overlooked. It gives marketability and hence 'value' to gas owned by the company and gives the pipeline company a large power over the marketability and hence 'value' of the production of others.

The other part of the business-to reduce to possession an adequate supply of natural gas-is of opposite character, being more erratic and irregular and unpredictable in relation to investment than any phase of any other utility business. A thousand feet of gas captured and severed from real estate for delivery to consumers is recognized under our law as property of much the same nature as a ton of coal, a barrel of oil, or a yard of sand. The value to be allowed for it is the real battleground between the investor and consumer. It is from this part of the business that the chief difference between the parties as to a proper rate base arises.

It is necessary to a 'reasonable' price for gas that it be anchored to a rate base of any kind? Why did courts in the first place begin valuing 'rate bases' in order to 'value' something else? The method came into vogue ***648** in fixing rates for transportation service which the public obtained from common carriers. The public received none of the carriers' physical property but did make some use of it. The carriage was often a monopoly so there were no open market criteria as to reasonableness. The 'value' or 'cost' of what was put to use in the service by the carrier was not a remote or irrelevant consideration in making such rates. Moreover the difficulty of appraising an intangible service was thought to be simplified if it could be related to physical property which was visible and measurable and the items of which might have market value. The court hoped to reason from the known to the unknown. But gas fields turn this method topsy turvy. Gas itself is tangible, possessible, and does have a market and a price in the field. The value of the rate base is more elusive than that of gas. It consists of intangibles-leaseholds and freeholds-operated and unoperated-of little use in themselves except as rights to reach and capture gas. Their value lies almost wholly in predictions of discovery, and of price of gas when captured, and bears little relation to cost of tools and supplies and labor to develop it. Gas is what Hope sells and it can be directly priced more reasonably and easily and accurately than the components of a rate base can be valued. Hence the reason for resort to a roundabout way of rate base price fixing does not exist in the case of gas in the field.

But if found, and by whatever method found, a rate base is little help in determining reasonableness of the price of gas. Appraisal of present value of these intangible rights to pursue fugitive gas depends on the value assigned to the gas when captured. The 'present fair value' rate base, generally in ill repute, FN43 is not even ****310** urged by the gas company for valuing its fields.

FN43 'The attempt to regulate rates by reference to a periodic or occasional reappraisal of the properties has now been tested long enough to confirm the worst fears of its critics. Unless its place is taken by some more promising scheme of rate control, the days of private ownership under government regulation may be numbered.' 2 Bonbright, Valuation of Property (1937) 1190.

***649** The prudent investment theory has relative merits in fixing rates for a utility which creates its service merely by its investment. The amount and quality of service rendered by the usual utility will, at least roughly, be measured by the amount of capital it puts into the enterprise. But it has no rational application where there is no such relationship between investment and capacity to serve. There is no such relationship between investment and amount of gas produced. Let us assume that Doe and Roe each produces in West Virginia for delivery to Cleveland the same quantity of natural gas per day. Doe, however, through luck or foresight or whatever it takes, gets his gas from investing $50,000 in leases and drilling. Roe drilled poorer territory, got smaller wells, and has invested $250,000. Does anybody imagine that Roe can get or ought to get for his gas five times as much as Doe because he has spent five times as much? The service one renders to society in the gas business is measured by what he gets out of the ground, not by what he puts into it, and there is little more relation between the investment and the results than in a game of poker.

Two-thirds of the gas Hope handles it buys from about 340 independent producers. It is obvious that the principle of rate-making applied to Hope's own gas cannot be applied, and has not been applied, to the bulk of the gas Hope delivers. It is not probable that the investment of any two of these producers will bear the same ratio to their investments. The gas, however, all goes to the same use, has the same utilization value and the same ultimate price.

To regulate such an enterprise by undiscriminatingly transplanting any body of rate doctrine conceived and ***650** adapted to the ordinary utility business can serve the 'public interest' as the Natural Gas Act requires, if at all, only by accident. Mr. Justice Brandeis, the pioneer juristic advocate of the prudent investment theory for man-made utilities, never, so far as I am able to discover, proposed its application to a natural gas case. On the other hand, dissenting in Commonwealth of Pennsylvania v. West Virginia, he reviewed the problems of gas supply and said, 'In no other field of public service regulation is the controlling body confronted with factors so baffling as in the natural gas industry, and in none is continuous supervision and control required in so high a degree.' 262 U.S. 553, 621, 43 S.Ct. 658, 674, 67 L.Ed. 1117, 32 A.L.R. 300. If natural gas rates are intelligently to be regulated we must fit our legal principles to the economy of the industry and not try to fit the industry to our books.

As our decisions stand the Commission was justified in believing that it was required to proceed by the rate base method even as to gas in the field. For this reason the Court may not merely wash its hands of the method and rationale of rate making. The fact is that this Court, with no discussion of its fitness, simply transferred the rate base method to the natural gas industry. It happened in Newark Natural Gas & Fuel Co. v. City of Newark, Ohio, 1917, 242 U.S. 405, 37 S.Ct. 156, 157, 61 L.Ed. 393, Ann.Cas.1917B, 1025, in which the company wanted 25 cents per m.c.f., and under the Fourteenth Amendment challenged the reduction to 18 cents by ordinance. This Court sustained the reduction because the court below 'gave careful consideration to the questions of the value of the property * * * at the time of the inquiry,' and whether the rate 'would be sufficient to provide a fair return on the value of the property.' The Court said this method was 'based upon principles thoroughly established by repeated secisions of this court,' citing many cases, not one of which involved natural gas or a comparable wasting natural resource. Then came issues as to state power to ***651** regulate as affected by the commerce clause. Public Utilities Commission v. Landon, 1919, 249 U.S. 236, 39 S.Ct. 268, 63 L.Ed. 577; Pennsylvania Gas Co. v. Public Service Commission, 1920, 252 U.S. 23, 40 S.Ct. 279, 64 L.Ed. 434. These questions settled, the Court again was called upon in natural gas cases to consider state rate-making claimed to be invalid under the Fourteenth Amendment. United Fuel Gas Co. v. Railroad Commission of Kentucky, 1929, 278 U.S. 300, 49 S.Ct. 150, 73 L.Ed. 390; United Fuel Gas Company v. Public Service Commission of West Virginia, 1929, 278 U.S. 322, 49 S.Ct. 157, 73 L.Ed. 402. Then, as now, the differences were 'due ****311** chiefly to the difference in value ascribed by each to the gas rights and leaseholds.' 278 U.S. 300, 311, 49 S.Ct. 150, 153, 73 L.Ed. 390. No one seems to have questioned that the rate base method must be pursued and the controversy was at what rate base must be used. Later the 'value' of gas in the field was questioned in determining the amount a regulated company should be allowed to pay an affiliate therefor-a state determination also reviewed under the Fourteenth Amendment. Dayton Power & Light Co. v. Public Utilities Commission of Ohio, 1934, 292 U.S. 290, 54 S.Ct. 647, 78 L.Ed. 1267; Columbus Gas & Fuel Co. v. Public Utilities Commission of Ohio, 1934, 292 U.S. 398, 54 S.Ct. 763, 78 L.Ed. 1327, 91 A.L.R. 1403. In both cases, one of which sustained, and one of which struck down a fixed rate the Court assumed the rate base method, as the legal way of testing reasonableness of natural gas prices fixed by public authority, without examining its real relevancy to the inquiry.

Under the weight of such precedents we cannot expect the Commission to initiate economically intelligent methods of fixing gas prices. But the Court now faces a new plan of federal regulation based on the power to fix the price at which gas shall be allowed to move in interstate commerce. I should now consider whether these rules devised under the Fourteenth Amendment are the exclusive tests of a just and reasonable rate under the federal statute, inviting reargument directed to that point ***652** if necessary. As I see it now I would be prepared to hold that these rules do not apply to a natural gas case arising under the Natural Gas Act.

Such a holding would leave the Commission to fix the price of gas in the field as one would fix maximum prices of oil or milk or coal, or any other commodity. Such a price is not calculated to produce a fair return on the synthetic value of a rate base of any individual producer, and would not undertake to assure a fair return to any producer. The emphasis would shift from the producer to the product, which would be regulated with an eye to average or typical producing conditions in the field.

Such a price fixing process on economic lines would offer little temptation to the judiciary to become back seat drivers of the price fixing machine. The unfortunate effect of judicial intervention in this field is to divert the attention of those engaged in the process from what is economically wise to what is legally permissible. It is probable that price reductions would reach economically unwise and self-defeating limits before they would reach constitutional ones. Any constitutional problems growing out of price fixing are quite different than those that have heretofore been considered to inhere in rate making. A producer would have difficulty showing the invalidity of such a fixed price so long as he voluntarily continued to sell his product in interstate commerce. Should he withdraw and other authority be invoked to compel him to part with his property, a different problem would be presented.

Allowance in a rate to compensate for gas removed from gas lands, whether fixed as of point of production or as of point of delivery, probably best can be measured by a functional test applied to the whole industry. For good or ill we depend upon private enterprise to exploit these natural resources for public consumption. The function which an allowance for gas in the field should perform ***653** for society in such circumstances is to be enough and no more than enough to induce private enterprise completely and efficiently to utilize gas resources, to acquire for public service any available gas or gas rights and to deliver gas at a rate and for uses which will be in the future as well as in the present public interest.

The Court fears that 'if we are now to tell the Commission to fix the rates so as to discourage particular uses, we would indeed be injecting into a rate case a 'novel' doctrine * * *.' With due deference I suggest that there is nothing novel in the idea that any change in price of a service or commodity reacts to encourage or discourage its use. The question is not whether such consequences will or will not follow; the question is whether effects must be suffered blindly or may be intelligently selected, whether price control shall have targets at which it deliberately aims or shall be handled like a gun in the hands of one who does not know it is loaded.

We should recognize 'price' for what it is-a tool, a means, an expedient. In public****312** hands it has much the same economic effects as in private hands. Hope knew that a concession in industrial price would tend to build up its volume of sales. It used price as an expedient to that end. The Commission makes another cut in that same price but the Court thinks we should ignore the effect that it will have on exhaustion of supply. The fact is that in natural gas regulation price must be used to reconcile the private property right society has permitted to vest in an important natural resource with the claims of society upon it-price must draw a balance between wealth and welfare.

To carry this into techniques of inquiry is the task of the Commissioner rather than of the judge, and it certainly is no task to be solved by mere bookkeeping but requires the best economic talent available. There would doubtless be inquiry into the price gas is bringing in the ***654** field, how far that price is established by arms' length bargaining and how far it may be influenced by agreements in restraint of trade or monopolistic influences. What must Hope really pay to get and to replace gas it delivers under this order? If it should get more or less than that for its own, how much and why? How far are such prices influenced by pipe line access to markets and if the consumers pay returns on the pipe lines how far should the increment they cause go to gas producers? East Ohio is itself a producer in Ohio. FN44 What do Ohio authorities require Ohio consumers to pay for gas in the field? Perhaps these are reasons why the Federal Government should put West Virginia gas at lower or at higher rates. If so what are they? Should East Ohio be required to exploit its half million acres of unoperated reserve in Ohio before West Virginia resources shall be supplied on a devalued basis of which that State complains and for which she threatens measures of self keep? What is gas worth in terms of other fuels it displaces?

FN44 East Ohio itself owns natural gas rights in 550,600 acres, 518,526 of which are reserved and 32,074 operated, by 375 wells. Moody's Manual of Public Utilities (1943) 5.

A price cannot be fixed without considering its effect on the production of gas. Is it an incentive to continue to exploit vast unoperated reserves? Is it conducive to deep drilling tests the result of which we may know only after trial? Will it induce bringing gas from afar to supplement or even to substitute for Appalachian gas? FN45 Can it be had from distant fields as cheap or cheaper? If so, that competitive potentiality is certainly a relevant consideration. Wise regulation must also consider, as a private buyer would, what alternatives the producer has ***655** if the price is not acceptable. Hope has intrastate business and domestic and industrial customers. What can it do by way of diverting its supply to intrastate sales? What can it do by way of disposing of its operated or reserve acreage to industrial concerns or other buyers? What can West Virginia do by way of conservation laws, severance or other taxation, if the regulated rate offends? It must be borne in mind that while West Virginia was prohibited from giving her own inhabitants a priority that discriminated against interstate commerce, we have never yet held that a good faith conservation act, applicable to her own, as well as to others, is not valid. In considering alternatives, it must be noted that federal regulation is very incomplete, expressly excluding regulation of ‘production or gathering of natural gas,’ and that the only present way to get the gas seems to be to call it forth by price inducements. It is plain that there is a downward economic limit on a safe and wise price.

FN45 Hope has asked a certificate of convenience and necessity to lay 1140 miles of 22-inch pipeline from Hugoton gas fields in southwest Kansas to West Virginia to carry 285 million cu. ft. of natural gas per day. The cost was estimated at $51,000,000. Moody's Manual of Public Utilities (1943) 1760.

But there is nothing in the law which compels a commission to fix a price at that ‘value’ which a company might give to its product by taking advantage of scarcity, or monopoly of supply. The very purpose of fixing maximum prices is to take away from the seller his opportunity to get all that otherwise the market would award him for his goods. This is a constitutional use of the power to fix maximum prices, ****313**Block v. Hirsh, 256 U.S. 135, 41 S.Ct. 458, 65 L.Ed. 865, 16 A.L.R. 165; Marcus Brown Holding Co. v. Feldman, 256 U.S. 170, 41 S.Ct. 465, 65 L.Ed. 877; International Harvester Co. v. Kentucky, 234 U.S. 216, 34 S.Ct. 853, 58 L.Ed. 1284; Highland v. Russell Car & Snow Plow Co., 279 U.S. 253, 49 S.Ct. 314, 73 L.Ed. 688, just as the fixing of minimum prices of goods in interstate commerce is constitutional although it takes away from the buyer the advantage in bargaining which market conditions would give him. United States v. Darby, 312 U.S. 100, 657, 61 S.Ct. 451, 85 L.Ed. 609, 132 A.L.R. 1430; Mulford v. Smith, 307 U.S. 38, 59 S.Ct. 648, 83 L.Ed. 1092; United States v. Rock Royal Co-operative, Inc., 307 U.S. 533, 59 S.Ct. 993, 83 L.Ed. 1446; Sunshine Anthracite Coal Co. v. Adkins, 310 U.S. 381, 60 S.Ct. 907, 84 L.Ed. 1263. The Commission has power to fix ***656** a price that will be both maximum and minimum and it has the incidental right, and I think the duty, to choose the economic consequences it will promote or retard in production and also more importantly in consumption, to which I now turn.

If we assume that the reduction in company revenues is warranted we then come to the question of translating the allowed return into rates for consumers or classes of consumers. Here the Commission fixed a single rate for all gas delivered irrespective of its use despite the fact that Hope has established what amounts to two rates-a high one for domestic use and a lower one for industrial contracts. FN46 The Commission can fix two prices for interstate gas as readily as one-a price for resale to domestic users and another for resale to industrial users. This is the pattern Hope itself has established in the very contracts over which the Commission is expressly given jurisdiction. Certainly the Act is broad enough to permit two prices to be fixed instead of one, if the concept of the ‘public interest’ is not unduly narrowed.

FN46 I find little information as to the rates for industries in the record and none at all in such usual sources as Moody's Manual.

The Commission's concept of the public interest in natural gas cases which is carried today into the Court's opinion was first announced in the opinion of the minority in the Pipeline case. It enumerated only two 'phases of the public interest: (1) the investor interest; (2) the consumer interest,' which it emphasized to the exclusion of all others. 315 U.S. 575, 606, 62 S.Ct. 736, 753, 86 L.Ed. 1037. This will do well enough in dealing with railroads or utilities supplying manufactured gas, electric, power, a communications service or transportation, where utilization of facilities does not impair their future usefulness. Limitation of supply, however, brings into a natural gas case another phase of the public interest that to my mind overrides both the owner ***657** and the consumer of that interest. Both producers and industrial consumers have served their immediate private interests at the expense of the long-range public interest. The public interest, of course, requires stopping unjust enrichment of the owner. But it also requires stopping unjust impoverishment of future generations. The public interest in the use by Hope's half million domestic consumers is quite a different one from the public interest in use by a baker's dozen of industries.

Prudent price fixing it seems to me must at the very threshold determine whether any part of an allowed return shall be permitted to be realized from sales of gas for resale for industrial use. Such use does tend to level out daily and seasonal peaks of domestic demand and to some extent permits a lower charge for domestic service. But is that a wise way of making gas cheaper when, in comparison with any substitute, gas is already a cheap fuel? The interstate sales contracts provide that at times when demand is so great that there is not enough gas to go around domestic users shall first be served. Should the operation of this preference await the day of actual shortage? Since the propriety of a preference seems conceded, should it not operate to prevent the coming of a shortage as well as to mitigate its effects? Should industrial use jeopardize tomorrow's service to householders any more than today's? If, however, it is decided to cheapen domestic use by resort to industrial sales, should they be limited to the few uses ****314** for which gas has special values or extend also to those who use it only because it is cheaper than competitive fuels? FN47 And how much cheaper should industrial***658** gas sell than domestic gas, and how much advantage should it have over competitive fuels? If industrial gas is to contribute at all to lowering domestic rates, should it not be made to contribute the very maximum of which it is capable, that is, should not its price be the highest at which the desired volume of sales can be realized?

FN47 The Federal Power Commission has touched upon the problem of conservation in connection with an application for a certificate permitting construction of a 1500-mile pipeline from southern Texas to New York City and says: 'The Natural Gas Act as presently drafted does not enable the Commission to treat fully the serious implications of such a problem. The question should be raised as to whether the proposed use of natural gas would not result in displacing a less valuable fuel and create hardships in the industry already supplying the market, while at the same time rapidly depleting the country's natural-gas reserves. Although, for a period of perhaps 20 years, the natural gas could be so priced as to appear to offer an apparent saving in fuel costs, this would mean simply that social costs which must eventually be paid had been ignored.

'Careful study of the entire problem may lead to the conclusion that use of natural gas should be restricted by functions rather than by areas. Thus, it is especially adapted to space and water heating in urban homes and other buildings and to the various industrial heat processes which require concentration of heat, flexibility of control, and uniformity of results. Industrial uses to which it appears particularly adapted include the treating and annealing of metals, the operation of kilns in the ceramic, cement, and lime industries, the manufacture of glass in its various forms, and use as a raw material in the chemical industry. General use of natural gas under boilers for the production of steam is, however, under most circumstances of very questionable social economy.' Twentieth Annual Report of the Federal Power Commission (1940) 79.

If I were to answer I should say that the household rate should be the lowest that can be fixed under commercial conditions that will conserve the supply for that use. The lowest probable rate for that purpose is not likely to speed exhaustion much, for it still will be high enough to induce economy, and use for that purpose has more nearly reached the saturation point. On the other hand the demand for industrial gas at present rates already appears to be increasing. To lower further the industrial rate is merely further to subsidize industrial consumption and speed depletion. The impact of the flat reduction ***659** of rates ordered here admittedly will be to increase the industrial advantages of gas over competing fuels and to increase its use. I think this is not, and there is no finding by the Commission that it is, in the public interest.

There is no justification in this record for the present discrimination against domestic users of gas in favor of industrial users. It is one of the evils against which the Natural Gas Act was aimed by Congress and one of the evils complained of here by Cleveland and Akron. If

Hope's revenues should be cut by some $3,600,000 the whole reduction is owing to domestic users. If it be considered wise to raise part of Hope's revenues by industrial purpose sales, the utmost possible revenue should be raised from the least consumption of gas. If competitive relationships to other fuels will permit, the industrial price should be substantially advanced, not for the benefit of the Company, but the increased revenues from the advance should be applied to reduce domestic rates. For in my opinion the 'public interest' requires that the great volume of gas now being put to uneconomic industrial use should either be saved for its more important future domestic use or the present domestic user should have the full benefit of its exchange value in reducing his present rates.

Of course the Commission's power directly to regulate does not extend to the fixing of rates at which the local company shall sell to consumers. Nor is such power required to accomplish the purpose. As already pointed out, the very contract the Commission is altering classifies the gas according to the purposes for which it is to be resold and provides differentials between the two classifications. It would only be necessary for the Commission to order ****315** that all gas supplied under paragraph (a) of Hope's contract with the East Ohio Company shall be ***660** at a stated price fixed to give to domestic service the entire reduction herein and any further reductions that may prove possible by increasing industrial rates. It might further provide that gas delivered under paragraph (b) of the contract for industrial purposes to those industrial customers Hope has approved in writing shall be at such other figure as might be found consistent with the public interest as herein defined. It is too late in the day to contend that the authority of a regulatory commission does not extend to a consideration of public interests which it may not directly regulate and a conditioning of its orders for their protection. Interstate Commerce Commission v. Railway Labor Executives Ass'n, 315 U.S. 373, 62 S.Ct. 717, 86 L.Ed. 904; United States v. Lowden, 308 U.S. 225, 60 S.Ct. 248, 84 L.Ed. 208.

Whether the Commission will assert its apparently broad statutory authorization over prices and discriminations is, of course, its own affair, not ours. It is entitled to its own notion of the 'public interest' and its judgment of policy must prevail. However, where there is ground for thinking that views of this Court may have constrained the Commission to accept the rate-base method of decision and a particular single formula as 'all important' for a rate base, it is appropriate to make clear the reasons why I, at least, would not be so understood. The Commission is free to face up realistically to the nature and peculiarity of the resources in its control, to foster their duration in fixing price, and to consider future interests in addition to those of investors and present consumers. If we return this case it may accept or decline the proffered freedom. This problem presents the Commission an unprecedented opportunity if it will boldly make sound economic considerations, instead of legal and accounting theories, the foundation of federal policy. I would return the case to the Commission and thereby be clearly quit of what now may appear to be some responsibility for perpetrating a shortsighted pattern of natural gas regulation.

U.S. 1944.
Federal Power Commission v. Hope Natural Gas Co.
51 P.U.R.(NS) 193, 320 U.S. 591, 64 S.Ct. 281, 88 L.Ed. 333

END OF DOCUMENT

VOLUMINOUS

TIEC 1-2 Attachment 9 is a VOLUMINOUS attachment.

Texas Utilities Code § 36.051. Establishing Overall Revenues

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In establishing an electric utility's rates, the regulatory authority shall establish the utility's overall revenues at an amount that will permit the utility a reasonable opportunity to earn a reasonable return on the utility's invested capital used and useful in providing service to the public in excess of the utility's reasonable and necessary operating expenses.

« Prev (https://codes.findlaw.com/tx/utilities-code/util-sect-36-009.html)

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Read this complete Texas Utilities Code § 36.051. Establishing Overall Revenues on Westlaw (https://1.next.westlaw.com/Document/I97C1B4B01B1C11EA81BB9350DACFF4DC/View/FullText.htr originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

VOLUMINOUS

TIEC 1-2 Attachment 11 is a VOLUMINOUS attachment.

PUC DOCKET NO. 43695
SOAH DOCKET NO. 473-15-1556

APPLICATION OF SOUTHWESTERN PUBLIC SERVICE COMPANY FOR AUTHORITY TO CHANGE RATES	**§ § §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

ORDER

This order addresses the application of Southwestern Public Service Company (SPS) for authority to change its Texas retail rates, filed on December 8, 2014. SPS originally sought a \$64.75 million increase to its Texas retail revenue requirement. SPS subsequently reduced its requested increase to \$58.85 million and then further lowered its request to a \$42.07 million increase.[1]

A hearing on the merits was held over seven days at the State Office of Administrative Hearings (SOAH). On October 12, 2015, the SOAH administrative law judges (ALJs) filed their proposal for decision in which they recommended a Texas retail revenue requirement increase of \$1.2 million. In response to parties' exceptions and replies to the PFD, on November 20, 2015, the SOAH ALJs filed a letter making changes to the PFD, including clarifying that they were recommending a \$14.4 million increase to SPS's Texas retail revenue requirement.

Except as discussed in this order, the Commission adopts the PFD as modified, including findings of fact and conclusions of law. The Commission's decisions result in a Texas retail base-rate revenue requirement of \$509,395,343, which is a decrease of \$4,025,973 from SPS's present Commission-authorized Texas retail base-rate revenue requirement. Finding of Fact 237A is modified to reflect the Commission-authorized decrease to SPS's Texas retail revenue requirement. New findings of fact 19A through 19E are added to reflect issuance of the PFD and filings and events thereafter. The Commission incorporates by reference the abbreviations table provided in the PFD.

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[1] Southwestern Public Service Co. (SPS) Initial Brief on the Revenue Requirement (Rev.) at 17 (Jul. 24, 2015); Proposal for Decision (PFD) at 27 (Oct. 12, 2015).

I. Golden Spread Adjustment to Jurisdictional Allocation

Under its broad rate-setting authority, the Commission may allow adjustments to a utility's cost of service during a historical test year for changes that are known and measurable.[2] Such an adjustment may be permitted with the intent that the known and measureable change should better represent the utility's cost of service that is apt to prevail in the future.[3] The utility bears the burden of proving that any adjustment it seeks is known and measurable.

In 2012, as part of a 2010 settlement at the Federal Energy Regulatory Commission (FERC), SPS and Golden Spread Electric Cooperative entered into a reduced wholesale power-supply contract. Under the contract, as of June 1, 2015 (11 months after SPS's test year for this proceeding), SPS's annual sale obligation decreased from 500 MW to 300 MW. In addition, SPS anticipates its annual sale obligations will decrease again to 100 MW in 2017, and sales under this contract will cease in 2019.[4]

In its application, SPS proposed an increase above its test-year jurisdictional allocations to Texas retail loads, which increased its Texas retail revenue requirement by $11.1 million, to reflect the June 1, 2015 reduction of its wholesale sales to Golden Spread.[5] The adjustment increased the retail jurisdictions' shares of embedded costs based on the retail jurisdictions' increased share of overall peak demand. The adjustment increased Texas retail's energy allocation factor from 53.77% to 54.90%, and increased Texas retail's production demand factor from 49.94% to 52.41%.[6] SPS asserts the related savings in Texas retail fuel are already being reflected in SPS's fuel rider.[7]

Most parties opposed the proposed change. The SOAH ALJs concluded that this adjustment is appropriate because it reflects a known and measureable change, representing a

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[2] 16 Texas Administrative Code Ann. (TAC) § 25.231(a).

[3] "Changes occurring after the test period, if known, may be taken into consideration by the regulatory agency ... in order to make the test-year data as representative as possible of the cost situation that is apt to prevail in the future." *City of El Paso v. Public Utility Commission of Texas*, 883 S.W.2d 179, 188 (Tex. 1994) (quoting *Suburban Util. Corp. v. Public Utility Commission of Texas,* 652 S.W.2d at 358, 366 (Tex. 1983)).

[4] PFD at 8, citing SPS Ex. 6, Evans Dir. T. at 59-61.

[5] PFD at 9, fn 25, citing TIEC Ex. 1, Pollock Dir. T. at 33.

[6] PFD at 9, citing SPS Ex. 54, Luth Dir. T. at 27; TIEC Ex. 1, Pollock Dir. T. at 32-34.

[7] PFD at 9, citing SPS Ex. 38, Evans Rebuttal T. at 40.

change that was known, fixed in time, and measurable. However, the Commission reaches a different conclusion in weighing the evidence and arguments of the parties. The Commission determines that SPS failed to prove its proposed change satisfies all the requirements for a known and measureable change to the utility's test-year data. SPS's proposed adjustment cherry picks one change in the utility's wholesale sales, which occurs after the test year, and fails to show this single change, in the absence of a broader analysis, will better represent the utility's jurisdictional costs and revenues that are apt to prevail in the future. Additionally, SPS's proposed change violates the matching principle because it fails to reflect both SPS's system costs and system sales during the same time period. Instead, SPS's proposed jurisdictional allocations are based on test-year sales and revenues data, except for the post-test-year reduction of sales to one wholesale customer that occurred at a later period. The Commission concludes SPS failed to prove that its mixing of time periods and selective modification relating to one wholesale contract results in a more accurate measure of the utility's jurisdictional costs and revenues that are apt to prevail in the future. The Commission reflects its decision on this jurisdictional-allocation issue by deleting proposed findings of fact 20 through 27 and instead adopting new findings of fact 20A, 21A, 22A, 23A, 24A, 24B, 25A through 25C, 26A, 26B, and 27A.

II. Capital Structure

SPS proposed a capital structure of 46.03% debt and 53.97% equity.[8] SPS's requested capital structure reflected activity through the end of 2014.[9] For example, in July 2014, Xcel invested $60 million to rebalance SPS's capital structure. This additional investment increased SPS's equity and decreased its debt.[10] SPS's proposed capital structure also included projected changes to the equity portion to reflect anticipated retained earnings.[11]

Commission Staff witness Ms. Winker testified that SPS's proposed capital structure is reasonable.[12] Texas Industrial Energy Consumers (TIEC), the Office of Public Utility Counsel

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[8] *Id.* at 29; SPS Application at Schedule K-1.

[9] SPS Ex. 8, Schell Dir. at 29.

[10] *Id.* at 29-30.

[11] *Id.* at 30.

[12] PFD at 76, citing Staff Ex. 6A., Winker Dir. T. at 34.

(OPUC), and the United States Department of Energy (DOE) proposed different capital structures with lower portions of equity. TIEC argued the Commission should adopt a 50% debt - 50% equity capital structure.[13] DOE advocated for a capital structure composed of 44.96% long-term debt, 3.06% short-term debt, and 51.98% equity.[14] OPUC asserted an adjustment should be made to SPS's proposal to reflect SPS's actual capital structure on December 31, 2014, instead of what SPS projected its capital structure would be on that same date.[15] OPUC's recommended capital structure also included an adjustment to reflect its recommended treatment of two rate swaps.

In the PFD, the SOAH ALJs recommended SPS's proposed capital structure be adopted.[16] However, the Commission concludes, based on the totality of the evidence, that SPS's rates should be set to reflect a capital structure consisting of 49% debt and 51% equity. This capital structure falls within the range of those supported by record evidence.[17] It is based in part on SPS's test-year capital structure and in part on recent Commission decisions in litigated base-rate proceedings in which the Commission set rates for vertically-integrated electric utilities reflecting capital structures of approximately 50% debt and 50% equity.[18] The Commission-adopted capital structure of 49% debt and 51% equity also reflects what would be a more prudent balance sheet of a vertically-integrated electric utility during this period of low-cost debt.[19] Consistent with this discussion, the Commission rejects proposed finding of fact 72, 74, 75 and 76 and instead adopts findings of fact 72A, 72B, 74A, 75A, and 76A.

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[13] TIEC Ex. 4, Gorman Dir. T. at 11-14.

[14] PFD at 78 citing DOE Ex. 1, Reno Dir. T. at 10.

[15] OPUC Ex. 10 at 31, Table 3.

[16] PFD at 80.

[17] PFD at 75-81.

[18] *E.g. Application of Entergy Texas, Inc. for Authority to Change Rates, Reconcile Fuel Costs, and Obtain Deferred Accounting Treatment,* Docket No. 39896, Order on Rehearing at 18, finding of fact 68 (Nov. 1, 2012) setting rates reflecting a capital structure of 50.05% long-term debt and 49.92% equity; *Application of Southwestern Electric Power Company for Authority to Change Rates and Reconcile Fuel Costs*, Docket No. 40443, Order on Rehearing at 31, findings of fact 148 and 149 (Mar. 6, 2014) setting rates reflecting a capital structure of 50.9% long-term debt and 49.1% equity.

[19] *See e.g.* TIEC Ex. 4, Gorman Dir. T. at 13-17 asserting SPS's proposed capital structure unreasonably relies too heavily on equity.

III. Operating and Maintenance Expense

A. Payroll Expense – Annual Incentive Plan

SPS's annual incentive plan is an incentive-compensation plan that covers exempt, non-bargaining employees in all states in which Xcel Energy operates. Each employee eligible to participate in the plan has a set of performance objectives. The amount an employee earns under the plan is dependent upon the achievement of specific corporate, business area, and individual performance goals.[20] In its requested expense for this plan, SPS removed what it asserted were all costs associated with the financially-based performance objectives. However, AXM advocated that all costs of the program should be disallowed as financially-based incentive compensation and OPUC agreed. Alternatively, OPUC's expert calculated a partial reduction to better reflect that the plan has a financially-based trigger and incents each employee to meet financially-based performance goals. Commission Staff also calculated its own recommended disallowance, reflecting what Commission Staff deemed to be excessive compensation to Xcel employees categorized as executives or grade X, business-area vice presidents or executives. In the PFD, the SOAH ALJs recommended the Commission accept Commission Staff's recommended reduction and reject the disallowances sought by AXM and OPUC.

It is well-established that a utility may not include in its rates the costs of incentives that are tied to financial-performance measures.[21] The Commission agrees with the SOAH ALJs' characterization of the annual incentive plan as "complicated" and notes that when a utility elects to adopt a compensation plan that involves both financially-based and performance-based metrics, the utility still must show it has removed all aspects of the financially-based goals from its requested expense.[22] Based on the testimony of the experts offered by AXM and OPUC, the Commission is not convinced SPS's adjustment fully captured the financial aspects of the annual incentive plan. Yet, SPS has sufficiently demonstrated that some portion of the plan is tied to performance-based objectives and is part of the necessary expense of attracting and retaining

[20] SPS Ex. 29, Reed Dir. T. at 26-27.

[21] *E.g. Application of Entergy Texas, Inc. for Rate Case Expenses Pertaining to PUC Docket No. 39896*, Docket No. 40295, Order at 2 (May 21, 2013) "The Commission has repeatedly ruled that a utility cannot recover the cost of financially-based incentive compensation because financial measures are of more immediate benefit to shareholders and financial measures are not necessary or reasonable to provide utility services."

[22] PFD at 86.

qualified Xcel employees. Therefore, removing all the expense of the plan would likewise be improper. Ultimately, the Commission adopts the amount of plan expense that OPUC recommended as an alternative. This amount better reflects that the plan has a financially-based, earnings-per-share trigger and requires Xcel employees to meet metrics that include financial goals, in addition to performance-related goals. Accordingly, the Commission deletes proposed findings of fact 83 through 85 and instead adopts new findings of fact 83A, 83B, 84A, and 85A.

B. Pension and Related Benefits – Stock-Equivalent Plan

Xcel Energy has a stock-equivalent plan that it provides to non-employee members of its board of directors. In its application, SPS included $163,701 as SPS's allocated expense of this plan. OPUC challenged this expense. In the PFD, the SOAH ALJs recommended the plan's expense should be removed, stating they are not persuaded the expense is a necessary component of SPS's cost of providing electric service.[23]

The Commission agrees that the expense associated with Excel Energy's stock-equivalent plan may not be included in SPS's reasonable and necessary expense; however, the Commission reaches this conclusion based upon different analysis.

SPS proved Xcel Energy is legally required to have a board of directors.[24] Further, such directors must be adequately compensated. Therefore, SPS's share of the compensation paid to Excel Energy's unaffiliated directors could be reasonable and necessary if properly structured and shown to be an reasonable amount. However, in this proceeding, SPS failed to prove the stock-equivalent plan is not financially-based incentive compensation. Each unit that sets director compensation under the plan has a value equal to one share of Xcel stock, directly aligning the non-employee directors' interests with shareholders'.[25] Thus, consistent with its decision in numerous prior base-rate proceedings, the Commission rejects the utility's requested expense. To reflect this decision, the Commission deletes proposed findings of fact 102. Instead, the Commission adopts new findings of fact 102A through 102D.

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[23] PFD at 104.

[24] SPS Ex. 48, Reed Rebuttal T. at 28. Ms. Reed cites to Section 302A.201, Subd. 1, Minnesota Statutes.

[25] OPUC Replies to Exceptions at 16.

C. Depreciation Expense – Accounts 392.02 and 392.04

In its application, SPS calculated its depreciation expense using average service lives of 10 years for light trucks and vans (entered in Federal Energy Regulatory Commission Uniform System of Accounts number 392.02) and 12 years for heavy trucks (entered in FERC account number 392.04). In the PFD, the SOAH ALJs recommended that the Commission instead adopt the respective average service lives of 12 and 14 years, as advocated by AXM.

The Commission overturns this portion of the PFD and instead determines the appropriate average service lives are 10 years for items in FERC account number 39.202 and 12 years for items in FERC account number 39.204. The SOAH ALJs' recommendation was based in part on notes from SPS's most-recent prior rate case, Docket No. 42004. However, those notes in fact reflected ranges of average service lives that were consistent with SPS's request in this proceeding. Further, SPS demonstrated in its rebuttal testimony that its proposal is based on a thorough actuarial analysis that includes estimates from JJ Kane, an auction house for used utility equipment. AXM's witness also conducted an actuarial analysis, but used data from the National Automobile Dealers' Association that represents the interests of new car & truck dealers and manufacturers.[26] The Commission deletes proposed findings of fact 124, 127, and 128, and adopts new findings of fact 124A, 127A, and 128A.

D. Affiliate Charges - Charges to Work Orders with New Mexico in the Titles

Xcel Energy Services, Inc. (XES), is a service company affiliated with SPS. Some of the work orders for which XES billed SPS during the test year included New Mexico or New Mexico locations in the work orders' titles. Other work orders included Texas or Texas locations in their titles. SPS applied a jurisdictional allocator to the work orders with Texas- or New Mexico-related titles and sought to include in its affiliate expense the Texas retail portion of these work orders. OPUC opposed including the charges for the work orders with New Mexico-related titles. In the PFD, the SOAH ALJs recommended that SPS met its initial burden of providing evidence that the contested work orders were allocated properly to the appropriate jurisdictions. However, the SOAH ALJs further concluded that, after OPUC raised a concern regarding these work orders, SPS failed to adequately explain in detail why the titles of the work orders are not assigned solely

[26] SPS Ex. 44, Watson Rebuttal T. at 79-82.

to the jurisdiction in the title. Thus, the ALJs recommended a disallowance of $203,474 associated with these work orders.[27]

The Commission acknowledges SPS's rebuttal testimony on this issue could have been more robust, but is persuaded by SPS's argument that it would be inconsistent and unfair to include only a portion of the costs of work orders with Texas-related titles while also excluding the costs of work orders with New Mexico-related titles. SPS provided evidence that the name of the state in a work order title does not mean that the associated work was performed only for the benefit of customers in that state. Rather, SPS witness, Ms. Schmidt-Petree, explained the relevant orders are associated with managerial-level work.[28] And other SPS witnesses attested to the reasonableness and necessity of the costs for the relevant XES work orders and the benefits to SPS's Texas customers.[29] Therefore, the Commission concludes SPS met its burden to show the reasonableness and necessity of the Texas-jurisdictional portion of the XES work orders with New Mexico-related titles. The Commission declines to adopt the SOAH ALJ's recommended disallowance, deletes finding of fact 136, and adopts modified findings of fact 136A through 136D to reflect the Commission's decision on this affiliate-expense issue.

E. Renewable Energy Credit Sales Revenue

Currently, SPS's revenues from sales of its renewable-energy credits (RECs) are credited to SPS's eligible fuel expense that is collected in a rider separate from the utility's base rates. Commission Staff recommended that SPS's revenues from REC sales instead be included in calculating the utility's base rates. SPS opposed both Commission Staff's proposal and Commission Staff's calculation of the utility's REC revenues.

In the PFD, the SOAH ALJs agreed with Commission Staff's recommendation to include REC revenues in base rates, but concluded the Commission should use SPS's calculation of those revenues.

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[27] PFD at 153-156.

[28] SPS Ex. 45, Schmidt-Petree Rebuttal T. at 8.

[29] *See* SPS's Exceptions to the PFD at 65, citing SPS testimony.

The Commission adopts the SOAH ALJ's recommendation that SPS's revenues from sales of its RECs should be included in setting the utility's base rates. However, the Commission adopts Commission Staff's calculation of those revenues, instead of SPS's calculation. Commission Staff's calculation better reflects SPS's reasonable REC revenues because it recognizes that all of SPS's excess RECs obtained during the test year would eventually be sold by a prudent utility. Further, SPS failed to prove why it would be reasonable for SPS to purchase and then, sometimes years later, sell at a loss RECs in excess of those required to meet Texas's renewable portfolio standard requirements. Commission Staff's calculation is consistent with the ALJ's recommended imputed price for bundled RECs, and use of this same amount for REC sales revenue will remove any increase in REC costs associated with selling the excess RECs at a loss. Consistent with its decision on this subject, the Commission deletes proposed findings of fact 198 and adopts new findings of fact 198A through 198C.

IV. Inter-class Cost Allocation and Revenue Distribution

A. Gradualism Adjustment

SPS requested rates based on a recent inter-class cost-of-service study (COS study), but with a two-step modification to result in the maximum base-revenue increase for any class being capped at 200% of the system-average increase and no class experiencing a rate decrease.[30] TIEC and Occidental Permian, Ltd. recommended a 150% average-system-wide-increase cap with no class experiencing an increase smaller than 50% of the system-average increase. AXM advocated for a 175% average-system-increase cap. DOE, OPUC, and Walmart supported a gradualism adjustment, depending on the final SPS revenue requirement and the impacts to each rate class.[31] Staff and Pioneer opposed any gradualism adjustment, asserting no customer class's rates would be modified enough to create rate shock. Thus, Staff and Pioneer argued, there is no justification for veering from the Commission's long-standing guiding principle that costs should be borne by the classes who cause them.

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[30] SPS Ex. 54, Luth Dir. T. at 60.

[31] PFD at 271.

In the PFD, the SOAH ALJs concluded that the Commission should adopt rates consistent with SPS's proposed gradualism adjustment.[32] The SOAH ALJs stated their recommendation struck a balance between competing policies and was consistent with recent Commission decisions in Dockets No. 39896 and 40443.[33]

The Commission declines to adopt any gradualism adjustment in this proceeding. The Commission has often stated that one of its primary responsibilities in setting rates is ensuring those rates are, to the greatest extent reasonable, consistent with cost causation. Further, as SPS conceded, the wisdom of a gradualism adjustment is affected by the size of the rate change.[34] While there is no magic threshold at which a change in rates automatically justifies an aberration from basing rates on classes' costs of service, in Docket 40443, the Commission determined that an increase as large as 29% did not warrant rate mitigation.[35] Here, SPS's overall Texas retail revenue requirement will be decreased by less than 1% and class allocations based purely on each classes' cost of service will result in relatively small rate changes. All but one class will experience less than a 14% change to its base-revenue responsibilities. The largest change will be borne by Street Lighting customers, whose revenue responsibility will increase 24.28%.[36] Thus, moving from classes' costs of service and mandating inter-class cost subsidization is not warranted in this proceeding. Consistent with the Commission's decision to not include any adjustments for gradualism, the Commission deletes proposed findings of fact 335 through 337 and instead adopts new findings of fact 335A through 335C, 336A, and 337A through 337C.

B. Calculation of System Load Factor

SPS calculated its system load factor, used to weight the average demand for the SPS system, by averaging the coincident peaks at the time of the SPS system peaks for the months of

[32] *Id.* at 280.

[33] *Id.* at 281.

[34] SPS Reply to Exceptions at 131.

[35] Staff Ex. 1A Murphy Direct T. at 53 (discussing rate changes adopted in Docket No. 40443); Docket No 40443, Proposal for Decision at 269 (May 20, 2013) adopted without modification by the Commission in its Order on Rehearing (Mar. 6, 2014).

[36] Commission Staff memorandum dated December 11, 2015 at 20, Attachment C.

June, July, August, and September, adjusted for losses (4CP).[37] Commission Staff, TIEC, State Agencies, and Occidental contested SPS's calculation. Those opposing SPS's calculation argued that SPS's system load factor should instead be based on the single highest peak demand measured during the test year, adjusted for losses (1CP).

In the PFD, the SOAH ALJs recommended that the Commission adopt SPS's proposal to use a 4CP-system-load factor. The SOAH ALJs noted 4CP was used when setting rates for Southwestern Public Service Company (SWEPCO) in Docket No. 40443. The SOAH ALJs also concluded that parties advocating for a 1CP load factor did not establish how 1CP will result in more proper cost allocation.[38] The Commission, however, is persuaded by the evidence of those parties, including TIEC, that assert use of a 1CP factor is more consistent with how SPP plans transmission and how SPS plans and builds its generation and transmission systems.[39] Further, in deposition, SPS's witness Mr. Luth acknowledged that a 1CP load factor is reasonable.[40] To reflect its decision of this issue, the Commission deletes proposed findings of fact 246 through 256 and instead adopts new findings of fact 246A through 251A.

C. Allocation of Radial Transmission Lines

In its application, SPS allocated the costs of its looped transmission lines to all classes based on each class's total contribution to the Texas retail average-and-excess-demand four coincident peaks (AED-4CP). For radial transmission lines, SPS made two proposals: direct assignment of the costs of radial transmission lines used to serve a single customer class and use of the AED-4CP allocation method for the costs of radial transmission lines that provide service to more than one customer class.[41] Numerous parties opposed SPS's proposed allocations regarding its radial transmission lines. TIEC, Occidental, DOE, and Amarillo Recycling Company asserted that, consistent with prior practice, the cost of an SPS radial transmission line should be allocated only to those classes that receive service from the line. In contrast, Commission Staff and OPUC advocated that all of SPS's transmission lines, including the radial transmission lines,

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[37] SPS Ex. 61, Evans rebuttal at 18.

[38] PFD at 226-228.

[39] TIEC Ex. 2, Pollock Dir. T. at 27; State Agencies Ex. 1, Pevoto Dir. T. at 8-9.

[40] TIEC Ex. 65, Luth Deposition at 67.

[41] SPS Ex. 61, Evans Rebuttal T. at 26.

should be allocated among SPS's classes in proportion to AED-4CP transmission demands without regard to looping or the location of class loads.[42]

In the PFD, the SOAH ALJs concluded basic cost-causation principles favor allocating the costs of SPS's multi-class radial transmission lines solely to the classes that take service from those lines.[43]

While the Commission appreciates the SOAH ALJs' mindfulness of the importance of cost-causation, the Commission reaches a different conclusion in addressing this issue. The Commission is persuaded by Commission Staff's arguments and concludes that all of SPS's transmission lines, including radial transmission lines, should be allocated to all classes in the same manner, using SPS's AED-4CP allocation method. Commission Staff showed that direct allocation of radial lines would be inconsistent with the manner in which transmission costs have traditionally been allocated in Texas. For example, in the Electric Reliability Council of Texas (ERCOT) footprint, the costs of transmission infrastructure are generally pooled and allocated system wide. Further, the Commission is persuaded by SPS that the utility lacks sufficient load data to more fairly allocate the costs of those transmission lines that are known to serve more than one customer class. The Commission reflects its decision on this class-allocation issue by deleting proposed findings of fact 257 through 265 and instead adopting new findings of fact 257A, 258A, 259A, and 260A.

D. Allocation of Primary and Secondary Distribution Costs within the Residential Class

SPS proposed to allocate distribution costs separately among its general-residential-service customers and those residential-service customers who take service under the rates for residential customers with electric space heating, based upon each group's non-coincident peak (NCP) distribution load. OPUC challenged this cost allocation, asserting distribution costs should instead be allocated to the residential class as a whole, based on the highest load of the entire residential class. In the PFD, the SOAH ALJs recommended the Commission deny OPUC's proposal and instead accept SPS's proposal to allocate distribution costs separately to each residential subclass based on each subclass's own NCP distribution load.

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[42] Staff Ex. 1A, Murphy Direct T. at 44-46.

[43] PFD at 235.

The Commission overturns this portion of the PFD because the Commission is persuaded by OPUC's arguments that costs should be allocated to the Residential class as a whole, reflecting it is a single customer class. Therefore, the Commission deletes proposed finding of fact 277 and instead adopts new findings of fact 277A and 277B.

E. Allocation of Meter-reading Costs

SPS proposed in its application to modify its prior method for allocating among its classes the costs of meter reading. SPS's new proposal involved applying a weighted count of the number of meters that can be read in a day for each class.[44] Although challenged by TIEC and State Agencies, the SOAH ALJs concluded SPS met its *prima facie* burden to show this proposed allocation method is reasonable and should be adopted.

The Commission is persuaded by State Agencies and TIEC that SPS failed to meet its burden of proof. SPS's proposal is not based on a formal study and fails to recognize that many factors may affect the respective costs of reading meters of customers in a particular class. For example, SPS witness Mr. Luth agreed during deposition that some of the industrial and large commercial customers have interval data recorder meters that do not require physical meter reading.[45] Therefore, the Commission adopts rates reflecting SPS's previous method of allocating the costs of meter reading based on customer count. The Commission deletes proposed findings of fact 307 through 309 and instead adopts new findings of fact 307A, 308A, and 309A.

V. Rate Design – Approval of Rate Classes in this Proceeding

The Commission's electric rule, 16 TAC § 25.5, defines the terms "customer class" and "rate class."[46] A customer class is defined as, "A group of customers with similar electric service characteristics (e.g., residential, commercial, industrial, sales for resale) taking service under one

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[44] SPS Ex. 54, Luth Direct T. at 56.

[45] PFD at 250 citing TIEC Ex. 65, Luth Deposition at 83.

[46] 16 TAC § 25.5(23), (100).

or more rate schedules. . . ."[47] A rate class is defined as, "A group of customers taking electric service under the same rate schedule."[48]

Commission Staff requested that the Commission make explicit in its final order what SPS rate classes are approved in this proceeding. Doing so would reduce or eliminate uncertainty in other types of rate proceedings, such as future energy-efficiency-cost-recovery factors, saving rate-case expenses.[49] SPS responded that the Commission should approve as rate classes the 11 customer classes proposed by SPS; however, the Commission should not identify other rate classes. SPS also asserted it should not be precluded from requesting different rate classes in future base rates proceedings.[50]

In the PFD, the SOAH ALJs recommended approval of 12 rate classes in this proceeding. They further recommend that it is not appropriate to determine requirements or parameters regarding rate classes in future base rate proceedings.[51]

The Commission agrees that, to avoid controversy and limit litigation expenses in any future rider proceedings filed before SPS next base-rate case, it is appropriate to explicitly approve the rate classes used in this proceeding. The Commission further concurs that it would be inappropriate to attempt to set parameters or requirements for proposed rate classes in future base-rate proceedings. However, the Commission determines there are 11 rate classes, not 12, as recommended by the SOAH ALJs, because the residential customers who take service under the rates for residential customers with electric space heating are part of the same rate class as the other residential customers. Consistent with this decision, the Commission adopts new finding of fact 339A.

For clarity and consistency, the Commission makes additional, non-substantive revisions to proposed findings of fact and conclusions of law. The Commission also adopts new ordering

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[47] 16 TAC § 25.5(23).

[48] 16 TAC § 25.5(100).

[49] PFD at 282-283 citing Staff Ex. 1A, Murphy Dir. T. at 57.

[50] SPS Ex. 57, Luth Rebuttal T. at 59, SPS Reply to Exceptions at 132

[51] PFD at 285.

paragraph 3 to make explicit that its findings of fact and conclusions of law are binding, irrespective of whether an ordering paragraph explicitly addresses the same subject.

The Public Utility Commission of Texas (Commission) adopts the following findings of fact and conclusions of law:

VI. Findings of Fact

Procedural History

1. Southwestern Public Service Company (SPS) is an investor-owned electric utility with a retail service area located in Texas.

2. SPS serves retail and wholesale electric customers in Texas and New Mexico. The New Mexico Public Regulation Commission regulates SPS's New Mexico retail operations. The Federal Energy Regulatory Commission (FERC) regulates SPS's wholesale electric operations.

3. On December 8, 2014, SPS filed with the Public Utility Commission of Texas (Commission) an application requesting approval of an increase in base-rate charges for the Texas retail jurisdiction of $64,746,197. SPS also requested approval of a set of proposed tariff schedules reflecting the increased rates and other revised terms.

4. The 12-month test year used in SPS's application runs from July 1, 2013, through June 30, 2014.

5. SPS provided notice by publication for four consecutive weeks before the effective date of the proposed rate change in newspapers having general circulation in each county of SPS's Texas service territory. SPS also mailed notice of its proposed rate change to all of its customers. Additionally, SPS timely served notice of its statement of intent to change rates on all municipalities retaining original jurisdiction over its rates and services.

6. The following parties were granted intervenor status in this docket: Alliance of Xcel Municipalities (AXM); Amarillo College; Amarillo Recycling Company, Inc. (ARC); Canadian River Municipal Water Authority; Golden Spread Electric Cooperative, Inc.; Laurance Kriegel, an individual residential customer; Occidental Permian, Ltd.; Office of Public Utility Counsel; Pioneer Natural Resources USA, Inc.; state of Texas agencies and

institutions of higher education; Texas Cotton Ginners' Association; Texas Industrial Energy Consumers; United States Department of Energy (DOE); and Wal-Mart Stores Texas, LLC and Sam's East, Inc.

7. On December 9, 2014, the Commission referred this case to the State Office of Administrative Hearings (SOAH).

8. In its initial filing, SPS requested approval of temporary rates to make the rates ultimately set in this case retroactive to January 12, 2015. At the prehearing conference held on December 19, 2014, SPS withdrew that request and agreed to extend the statutory deadline for the Commission's final order from June 11, 2015, to September 30, 2015. In addition, the parties agreed that the final rates set in this case will be made effective retroactive to June 11, 2015, for electric consumption occurring on and after that date.

9. On January 16, 2015, the Commission issued its preliminary order, identifying a non-exhaustive list of 47 issues to be addressed in this proceeding.

10. All of SPS's timely-filed petitions for review of the rate ordinances of the municipalities exercising original jurisdiction within SPS's service territory were consolidated for determination in this proceeding.

11. On March 2, 2015, SPS filed a case update, which reduced its requested base rate increase to $58,852,473.

12. On March 9, 2015, the administrative law judges (ALJs) issued SOAH Order No. 6 severing rate case expense issues that were incurred in connection with this docket into *Review of Rate Case Expenses Incurred by Southwestern Public Service Company and Municipalities in Docket No. 43695*, Docket No. 44498 (pending).

13. On March 30, 2015, the ALJs granted a motion to abate the case for 30 days, and SPS agreed to extend the statutory deadline from September 30, 2015, to October 30, 2015.

14. On April 27, 2015, SPS agreed to extend the statutory deadline to November 20, 2015.

15. On June 10, 2015, SPS filed a rebuttal cost of service, which reduced its requested base rate increase to $42,074,996. That request did not include the rate case expense amounts that had been severed from this proceeding, Docket No. 43695.

16. The hearing on the merits convened on June 24, 2015, and concluded on July 2, 2015.

17. For the revenue requirement phase, initial post-hearing briefs were filed on July 24, 2015, and reply briefs were filed on August 5, 2015. For the cost allocation/rate design phase, initial post-hearing briefs were filed on July 28, 2015, and reply briefs were filed on August 7, 2015.

18. Between July 24, 2015, and August 7, 2015, the parties filed proposed findings of fact, conclusions of law, and ordering paragraphs.

19. On October 7, 2015, SPS agreed to extend the statutory deadline to December 4, 2015.

19A. The SOAH ALJs filed their proposal for decision (PFD) on October 12, 2015.

19B. Parties filed exceptions to the PFD on November 2, 2015.

19C. Parties filed replies to exceptions on November 16, 2015.

19D. The SOAH ALJs filed corrections and modifications to the PFD on November 23, 2015.

19E. At an open meeting of the Commission on December 3, 2015, SPS agreed to extend the procedural deadline to December 18, 2015.

Jurisdictional Allocation

Adjustment for Golden Spread

20. [DELETED]

20 A. SPS's production costs are allocated to its New Mexico, Texas, and wholesale jurisdictions based primarily on two factors: energy (kWh) at source and 12CP production demand (kW) at source.

21. [DELETED]

21A. Based on the historical, test-year usage of customers in SPS's three jurisdictions, Texas retail customers would be allocated 53.77% of SPS's energy-related production costs and 49.94% of demand-related production costs.

22. [DELETED]

22A. SPS proposes a post-test year adjustment to its jurisdictional allocation factors to reflect a 200 MW decrease in wholesale sales to Golden Spread Electric Cooperative (Golden Spread) that SPS stated it expected to occur on June 1, 2015, approximately one year after the end of the test year.

23. [DELETED]

23A. SPS's proposed test year adjustment increases the energy jurisdictional allocator for Texas from 53.77% to 54.90%, and it increases the demand jurisdictional allocator for Texas from 49.94% to 52.41%. The impact of these changes would be to increase Texas's allocation of SPS's production costs by approximately $12 million.

24. [DELETED]

24A. Under the "matching principle," the time period used for expenses must match the time period used for revenues in setting rates.

24B. The Commission has long adhered to the matching principle.

25. [DELETED]

25A. SPS has had load growth in New Mexico since the test year, but has not quantified the amount of that growth for use in this case.

25B. SPS did not offer evidence of its post-test year New Mexico and wholesale jurisdiction sales during the same time period as the reduction in its wholesale sales to Golden Spread.

25C. SPS admits it does not know what the relative loads of its three jurisdictions will be during the rate year.

26. [DELETED]

26A. SPS's failed to prove its proposed post-test-year adjustment to its jurisdictional allocation factors reflects jurisdictional allocations that are apt to prevail in the future.

26B. SPS failed to meet its burden of proving that its proposed adjustment to its jurisdictional allocation factors is known and measurable with reasonable certainty.

27. [DELETED]

27A. SPS's jurisdictional allocation factors should be set based on the actual test-year data.

General and Intangible Plant

28. SPS allocates costs among its Texas retail, New Mexico retail, and wholesale jurisdictions.

29. SPS allocated general and intangible plant for jurisdictional purposes based on the labor excluding administrative and general expense (LABXAG) allocator.

30. The use of the LABXAG allocator is appropriate for allocating general and intangible plant among jurisdictions because the general- and intangible-plant costs are driven primarily by employee needs.

31. The use of the LABXAG allocator is also appropriate to allocate general and intangible plant costs among jurisdictions because SPS uses that allocator to allocate general and intangible plant in its New Mexico retail and wholesale jurisdictions.

Account 923 – Outside Service – Legal

32. SPS allocated FERC Account 923 – Outside Service – Legal costs for jurisdictional purposes based on the LABXAG allocator.

33. The use of the LABXAG allocator is appropriate to allocate outside-service legal costs for jurisdictional purposes because SPS engages outside counsel to perform only the work that exceeds the capacity of its in-house legal staff, and the costs of the in-house legal staff are allocated based on labor.

Rate Base

Capital Additions as of the End of the Test Year

34. During the period from July 1, 2012, through June 30, 2014, SPS placed the following amounts of plant in service:

a. Production	$204,502,143.67
b. Transmission	$417,911,707.91
c. Distribution	$120,646,272.79
d. General	$ 51,185,115.18
e. Software	$ 21,515,105.63
Total	**$815,760,345.18**

35. Capital additions that were closed to plant in service between July 1, 2012, and June 30, 2014, are used and useful in providing service to the public, and the costs were prudently incurred.

<u>Post Test Year Capital Additions</u>

36. The Commission may approve post-test-year adjustments to plant in service if a utility proves that they meet the requirements of 16 Tex. Admin. Code § 25.231(c)(2)(F) (TAC).

37. In its initial filing, SPS requested post-test-year adjustments to include in rate base a total of $441,651,953 (total company) for numerous capital additions to be placed in service between July 1, 2014, and December 31, 2014. On March 2, 2015, SPS updated that amount to reflect actual expenditures of $392,549,024.39.

37A. Changes in SPS's post-test-year-adjustment proposal account for most of the large post-application reduction in SPS's requested Texas retail base rate revenue increase. Those changes are shown below:

Timing of SPS's Requested Base Rate Revenue Increase	**Base Rate Revenue Increase**	**Base Rate Revenue Increase from Proposed Post-Test-Year Adjustments**
December 2014 (application)	$64.75 million	$29.7 million
March 2015 (case update)	$58.85 million	$23.8 million
June 2015 (rebuttal case)	$42.07 million	$8.9 million

38. None of the capital additions for which SPS sought a post-test-year adjustment satisfies the requirement in 16 TAC § 25.231(c)(2)(F)(i)(II) that each addition comprise at least 10% of SPS's requested rate base, exclusive of the post-test-year adjustments and construction work in progress (CWIP).

39. SPS's proposed post-test-year adjustments to rate base do not satisfy the requirement in 16 TAC § 25.231(c)(2)(F)(ii)(I) that each post-test year plant adjustment be included in rate base at the reasonable test-year-end CWIP balance.

40. Under 16 TAC § 25.3, the Commission may make good cause exceptions to its rules.

41. SPS requested good cause exceptions to 16 TAC § 25.231(c)(2)(F)(i)(II) and (ii)(I).

42. SPS's asserted basis for the good cause exceptions is the effect the post-test-year adjustments would have on its financial integrity.

43. SPS has investment grade credit ratings and its credit outlook is rated as stable.

44. Even without the post-test-year adjustments to rate base, SPS projects: (1) an earnings before interest, taxes, depreciation, and amortization for year 2015 that is higher than in any year between 2010 and 2014; (2) a funds for operations/debt ratio that is higher than in 2010 and 2013; (3) a funds for operations/interest ratio that is higher than any year between 2010 and 2013; and (4) a better debt/capital ratio than in any year between 2010 and 2014.

45. SPS's requested post-test-year adjustments to rate base are not necessary to its financial integrity, have little effect on SPS's key financial metrics, and are not necessary for SPS to be able to attract capital on reasonable terms.

46. SPS's proposed post-test-year adjustments to rate base should be denied because they violate 16 TAC § 25.231(c)(2)(F)(i)(II) and (ii)(I) and SPS did not show good cause to grant its requested exceptions to those rule requirements.

Depreciation Reserve Balance

47. The depreciation reserve balance approved in this proceeding accurately reflects the depreciation rate approved by the Commission in this proceeding.

48. Software systems that were fully amortized on or before June 30, 2014, when the test year ended, should not be included in rate base.

Prepaid Pension Asset

49. A prepaid pension asset arises under generally accepted accounting principles (GAAP) in accordance with Statement of Financial Accounting Standards (FAS) 87. A prepaid pension asset reflects the amount by which the accumulated contributions to the pension fund exceed the accumulated FAS 87 pension cost.

50. Accounting in accordance with GAAP requires that the amount by which the cash contributions made to the pension trust exceed the accumulated pension cost to be recorded as a prepaid pension asset.

51. Investment income on the prepaid pension asset reduces qualified pension costs calculated under FAS 87, which benefits customers by reducing the amount of pension costs included in base rates.

52. SPS's 13-month prepaid pension asset calculated in accordance with GAAP is $168.6 million (total company), after offsetting a non-qualified pension liability.

53. The prepaid pension asset is appropriately included in rate base because it represents a prepayment by SPS.

54. SPS properly included in rate base the accumulated deferred federal income tax (ADIT) liability associated with the prepaid pension asset.

FAS 106 and FAS 112 Liabilities

55. SPS's 13-month average FAS 106 and FAS 112 liabilities were $17,391,011 (total company) and $2,341,289 (total company), respectively.

56. The FAS 106 and FAS 112 liabilities should be included in rate base because they reflect amounts that customers have funded.

57. SPS properly included in rate base the ADIT assets associated with the FAS 106 and FAS 112 liabilities.

Cash Working Capital

58. Investor-owned utilities may include in rate base a reasonable allowance for cash working capital as determined by a lead-lag study conducted in accordance with 16 TAC § 25.231(c)(2)(B)(iii).

59. Cash working capital represents the amount of working capital, not specifically addressed in other rate base items, that is necessary to fund the gap between the time expenditures are made and the time corresponding revenues are received.

60. The lead-lag study conducted by SPS considered the actual operations of SPS, adjusted for known and measurable changes, and is consistent with 16 TAC § 25.231(c)(2)(B)(iii).

61. The cash working capital allowance associated with federal income tax expense was calculated by SPS consistently with the calculations of other negative balances and is proper.

Accumulated Deferred Federal Income Taxes

62. SPS properly included ADIT amounts in rate base, except that the amounts related to the deferred tax assets associated with SPS's bad debt reserve accruals and vacation accrual reserves should not be included in rate base.

63. SPS argued, but did not prove, that the deferred tax assets associated with bad debt reserve accruals and vacation accrual reserves should be included in rate base because the corresponding asset or liability balance recorded on SPS's balance sheet (*i.e.*, the reserve for uncollectible accounts and accrued liability to recognize employee vacations earned but not taken) is included in the cash working capital calculation.

Other Prepayments and Short-Term Assets

64. The following short-term assets should be included in rate base: fuel inventory of $12,255,296; and materials and supplies of $20,289,186 (both total company).

65. The following prepayment amounts (total company) should be included in rate base, in addition to the prepaid pension asset: insurance prepayments of $2,847,487; transmission prepayments of $172,814; auto licensing prepayments of $56,568; information-technology related prepayments of $119,081; pollution emission prepayments of $422,956; and other benefit prepayments of $9,881.

Regulatory Assets

66. The unamortized amount of deferred pension and Other Post-Employment Benefits (OPEB) costs should be considered a regulatory asset and included in rate base.

67. The capitalized property tax attributable to CWIP that was in service by the end of the test year should be included in rate base.

Rate of Return

68. A return on common equity of 9.70% will allow SPS a reasonable opportunity to earn a reasonable return on its invested capital.

69. A 9.70% return on equity is consistent with SPS's business and regulatory risk.

70. SPS's proposed 5.98% cost of debt is reasonable.

71. It is unreasonable and inconsistent with Commission precedent to include short-term debt in SPS's capital structure.

72. [DELETED]

72A. The appropriate capital structure for SPS is 49% long-term debt and 51% common equity.

72B. A capital structure of 49% debt and 51% equity is based in part on SPS's test-year capital structure, is consistent with recent Commission decisions in other litigated base-rate proceedings for vertically integrated Texas utilities, and reflects a more prudent balance sheet during this period of low-cost debt.

73. The costs incurred by SPS for interest rate swaps were reasonable and prudent. Therefore, no reduction to the cost of debt or the capital structure is warranted.

74. [DELETED]

74A. A capital structure composed of 49% debt and 51% equity is reasonable in light of SPS's business and regulatory risks.

75. [DELETED]

75A. A capital structure composed of 49% debt and 51% equity will be sufficient to attract capital from investors.

76. [DELETED]

76A. SPS's overall rate of return should be set as follows:

Capital Component	**Capital Structure**	**Cost of Capital**	**Weighted Average Cost of Capital**
Long-term Debt	49%	5.98%	2.93%
Common Equity	51%	9.70%	4.95%
Total	100.00%		7.88%

Operation & Maintenance Expenses

77. The final cost of service should reflect changes to the cost of service that affect other components of the revenue requirement, including but not limited to the Texas state gross receipts tax, the local gross receipts tax, and the PUC assessment tax.

Payroll Expense

78. SPS requested the following amounts for payroll expense on a total company basis: $107,840,478 for base salaries; $5,202,078 for Annual Incentive Plan (AIP) payments; $1,343,457 for the Supplemental Incentive Plan (SIP) payments; and $80,138 for the Spot On Award Recognition Program (Spot On) payments.

79. SPS requested an adjustment of 3% to base salary levels of non-bargaining employees to reflect the base salary increases that were scheduled to occur for those employees in March 2015.

80. The 3% base salary increases for non-bargaining employees occurred in March 2015.

81. The salary increases for non-bargaining employees are known because they actually were incurred in March 2015. These salary increases are measurable because the amount has been quantified. Therefore, the known and measurable adjustment to base salary levels for non-bargaining employees is approved and should be reflected in the cost of service.

82. Although SPS requested an adjustment of 3% to base salary levels of bargaining employees to reflect the base salary increases that are likely to result from the current negotiations between SPS and the employees' union, the 3% base salary increases for bargaining employees is not known and measurable. Therefore, this requested adjustment should be denied.

83. [DELETED]

83A. SPS's Annual Incentive Plan includes both financially-based and performance based goals.

83B. Compensation to employees under the Annual Incentive Plan is based in part on an earnings-per-share trigger.

84. [DELETED]

84A. A certain amount of incentives to achieve operational measures is reasonable and necessary to the provision of electric service. However, SPS failed to prove its proposal removed all the costs associated with the financially-based components of the Annual Incentive Plan.

85. [DELETED]

85A. The Office of Public Utility Counsel's alternatively-recommended adjustment to eliminate $2,604,995 associated with the Annual Incentive Plan, plus corresponding flow through reductions, results in allowable expense for the plan that is reasonable and necessary to the provision of electric service, and should be included in the cost of service.

86. SPS's compensation levels should not be decreased to reflect a post-test-year reduction in the number of SPS and Xcel Energy Services, Inc. (XES) employees because the number of employees is similar to or higher than the test-year number of employees.

87. Because 45% of margins gained from energy trades is allocated to shareholders, and energy traders are eligible for the AIP, SPS's request for recovery of SIP payments to energy traders is unreasonable and not necessary for the provision of electric service. SPS's request for recovery of SIP payments should be denied.

88. SPS's proposed Spot On payments are reasonable and necessary to the provision of electric service, and those expenses should be included in the cost of service.

Pension and Related Benefits

89. SPS requested recovery of $16,202,277 (total company) of qualified pension expenses based on the test year.

90. SPS's actuarially-determined qualified pension expense for calendar year 2014 was $14,308,146 (total company).

91. SPS's actuarially-determined level of qualified pension expense for calendar year 2014 is representative of costs that are likely to prevail during the time rates set in this case are in effect. Therefore, $14,308,146 of qualified pension expense should be included in the cost of service.

92. The $14,308,146 represents the baseline amount for purposes of § 36.065(b) of the Public Utility Regulatory Act, Tex. Util. Code Ann. §§ 11.001-66.016 (West 2007 & Supp. 2014) (PURA) on a going-forward basis for qualified pension expense.

93. SPS requested recovery of $14,354,924 (total company) of active health care expense is based on the test-year amount, adjusted for a 7% escalation rate.

94. SPS's actual active health care expense for calendar year 2014 was $14,117,064 (total company).

95. SPS's actual level of active health and welfare expense for calendar year 2014 is representative of costs that are likely to prevail during the time rates set in this case are in effect. Therefore, $14,117,064 of active health care expense should be included in the cost of service.

96. SPS requested recovery of $250,653 (total company) of test year retiree medical expense calculated in accordance with FAS 87 (also known as OPEB).

97. SPS's actuarially determined retiree medical expense for calendar year 2014 was $173,864 (total company).

98. SPS's actuarially determined level of retiree medical expense for calendar year 2014 is representative of costs that are likely to prevail during the time rates set in this case are in effect. Therefore, $173,864 of active health care expense should be included in the cost of service.

99. The $173,864 represents the baseline amount for purposes of PURA § 36.065(b) on a going-forward basis for retiree medical expense.

100. The following amounts of benefit expense (all total company) are reasonable and should be included in the cost of service: $37,835 for self-insured long-term disability expense calculated in accordance with FAS 112; $1,147,796 for third-party insured workers' compensation expense; $2,668,145 for 401(k) matching expense; and $243,704 for miscellaneous retirement-related costs.

101. SPS requested $163,701 in Stock Equivalent Plan expenses that serve as compensation paid to the Xcel Energy Inc. (Xcel Energy) Board of Directors.