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THE BUSINESS SITUATION IN TEXAS

Francis B. May

After rising each month from December 1971 until March of this year, the index of estimated Texas personal income declined 1 percentage point in April, dropping back to 150.2 percent of its 1967 base value. The April value of the index was virtually the same as its February value, differing by only a small fraction of a percentage point. Despite this drop the index was 6.9 percent above April 1971. Its average value for the first four months of this year was 8 percent above the January-April period of 1971.

A decline in the index of Texas business activity accompanied the decline in personal income. Business activity dropped 6 percent from its March level to a value of 155.8 percent of its 1967 base value. That figure, the same as the January index level, was 3.2 percent above April of last year. During the January-April period Texas business activity averaged 9 percent above the first third of last year.

The strength of these two indexes during January through April as indicated by their higher average values means that their April declines are deviations from a basically strong upward cyclical movement which is a part of the general economic recovery in the nation.

The business-activity indexes for twenty Texas cities show that the behavior of the statewide index represents a widespread pattern. All but one of the individual city indexes showed declines in April. The lone exception was Austin, which had a 7-percent rise. Activity during the January-April period averaged above the same period last year in all but three of the cities. The three with lower average levels of activity for the first third of the year were Corsicana, down 6 percent, Galveston, down 7 percent, and Port Arthur, down 18 percent. The remaining seventeen cities showed four-month average increases ranging from a high of 20 percent for Austin to a low of 1 percent for Beaumont. The state's four largest cities showed four-month average gains of 5 percent each for Dallas, Fort Worth, and San Antonio, and 17 percent for Houston.

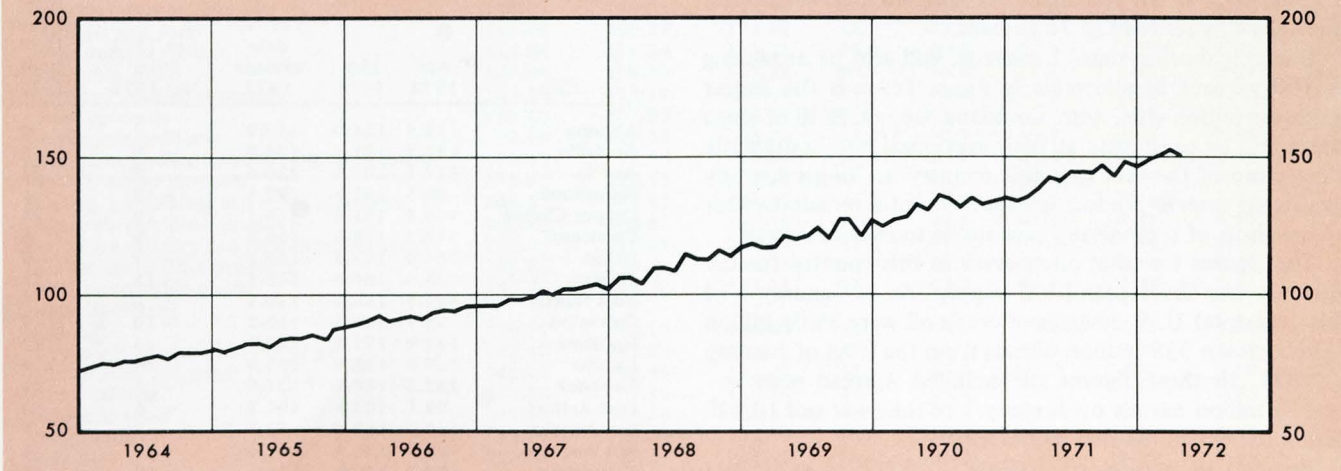
Recovery from the November 1969 to November 1970 cyclical down-turn, it is generally agreed, has been less rapid than desired. Similar sluggish upswings have occurred, however, in the history of business-cycle fluctuations. With the index of Texas business activity as a measure, a comparison of the period since the present upswing began with the corresponding period following the February 1961 cyclical low point reveals that history seems to be repeating itself. The index of Texas business activity has risen 11.6 percent above its November 1970 low. During the corresponding period following the February 1961 low the index rose 13.4 percent. The two figures are rather close. Since that February 1961 low point was followed by the longest cyclical upswing in the history of this country, the apparent slowness of the present upswing should not be discouraging.

Crude-petroleum production in Texas rose 6 percent in April—the third consecutive monthly rise in that index. At 120.1 percent of its 1967 base value the index was at its highest level since November 1970, when it reached a peak value of 121.0 percent. It was 5.7 percent above April of last year.

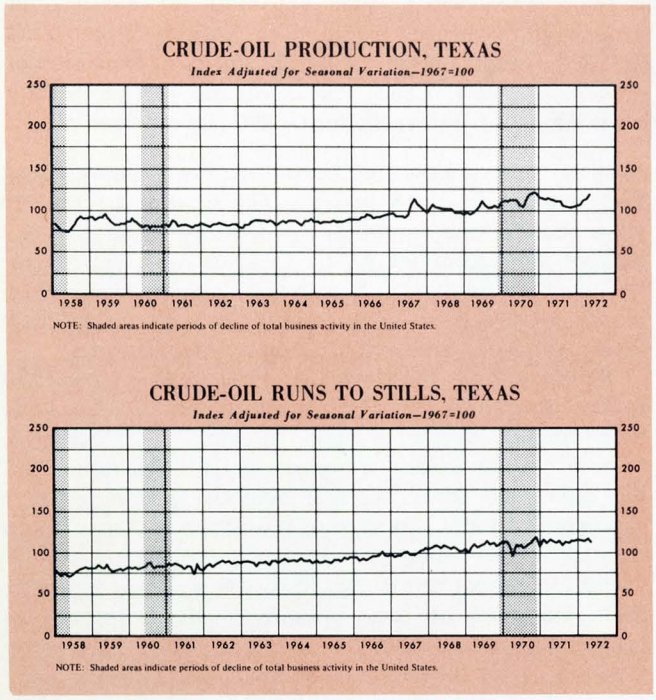
Despite the steady rise during the February-April period, the index of crude-petroleum production averaged 2 per-

ESTIMATED PERSONAL INCOME, TEXAS

Index Adjusted for Seasonal Variation — 1967=100



SOURCE: Quarterly measures of Texas personal income made by the Office of Business Economics, U.S. Department of Commerce. Monthly allocations of quarterly measures, and estimates of most recent months, made by the Bureau of Business Research with regression relationships of time, bank debits, and insured unemployment.



cent below the first four months of 1971. This decrease was due to strong production during the first three months of 1971. Production in every month of the first quarter of 1971 exceeded that of the corresponding month of this year. Not until April did 1972 have a month whose production exceeded that of the corresponding 1971 month. A warm winter decreased demand for fuel oil and hence for petroleum during the first quarter of this year. The result was a poorer showing in comparison with the first quarter of last year. The first quarter of 1971 was colder, which boosted demand for fuel oil.

The Texas Railroad Commission has set the production allowable at 100 percent for June, the second consecutive month of essentially wide-open production. Because of technical factors affecting production, the East Texas field is being held to 86 percent of its maximum allowable and the Kelly-Snyder field to 76 percent.

Our neighboring state, Louisiana, will also be producing at 100 percent of allowable in June. Texas is the largest producer nationwide, with Louisiana second. Both of these states will be producing at their maximum rate—a dramatic illustration of the fact that this country no longer has any significant reserve-producing capacity and a remainder that we are short of ecologically acceptable sources of energy.

The figures for total oil reserves in this country further illustrate the short petroleum supply. As of January 1 of this year total U. S. reserves of crude oil were 38.06 billion barrels, down 938 million barrels from the total of January 1, 1971. In these figures are included Alaskan reserves—10,116 billion barrels on January 1 of this year and 10,148 billion barrels on the first day of 1971.

Reserves of natural gas declined 11.9 trillion cubic feet in 1971 to a January 1, 1972 total of 278.1 trillion cubic feet. An increase in incentives to explore and drill for new oil and gas deposits is badly needed.

Texas was one of the states contributing to the decline in total United States reserves of oil and natural gas. Crude-petroleum reserves in the state declined 177 million barrels to 13.0 billion barrels. Only two of the oil-conservation districts into which the state is divided showed net gains in reserves in 1971: District 1 in Northeast Texas and District 8, the gigantic Permian basin in West Texas. District 1 had a small increase, only 3.7 million barrels, due largely to extensions of existing fields. District 8 had an increase of 422.1 million barrels, due to upward revision of estimates of total reserves in existing fields. Declines in reserves in other districts wiped out these gains, producing a net decline for the state of 177 million barrels. District 6, which contains the East Texas field, led the districts experiencing declines with a 138.1 million barrel drop. District 8A on the High Plains was second with a 127.7 million barrel decline. District 4, in Southwest Texas, was third with a 112.8 million barrel reduction.

Natural-gas reserves in Texas declined 4.9 trillion cubic feet in 1971 to a January 1, 1972 low of 101.5 trillion cubic feet. All conservation districts in the state experienced declines in reserves. The largest decline was in District 4, which had a 2.2 trillion cubic feet reduction.

Existing Texas reserves of oil and gas are sufficient for only a limited time. At the 1971 production level of 1.18 billion barrels, the state's oil reserves are good for 11 more years of production. Natural-gas reserves will last for 12.4 more years at the 1971 production rate, 8.17 trillion cubic feet. National reserves of crude oil are good for 11.7 years more at the 1971 production rate of 3.3 billion barrels. At the 1971 production rate of 22.08 trillion cubic feet, national reserves of natural gas are good for 12.6 more

BUSINESS-ACTIVITY INDEXES FOR TWENTY SELECTED TEXAS CITIES
(Adjusted for seasonal variation—1967=100)

City	Apr 1972	Mar 1972	Year-to-date average 1972	Percent change: Apr 1972 from Mar 1972	Percent change: Year-to-date average 1972 from 1971
Abilene	115.5	124.4	117.9	– 7	9
Amarillo	133.8	141.8	134.8	– 6	8
Austin	217.1	203.0	220.6	7	20
Beaumont	88.5	101.6	97.1	– 13	1
Corpus Christi	145.4	161.4	154.1	– 10	14
Corsicana	113.3	124.5	116.8	– 9	– 6
Dallas	164.0	175.7	168.7	– 7	5
El Paso	138.6	156.6	145.5	– 12	11
Fort Worth	147.7	156.4	150.5	– 6	5
Galveston	98.7	109.6	116.2	– 10	– 7
Houston	161.9	172.6	163.4	– 6	17
Laredo	133.9	155.8	148.8	– 14	4
Lubbock	132.3	139.7	131.9	– 5	12
Port Arthur	99.1	103.6	101.2	– 4	– 18
San Angelo	151.7	163.8	152.7	– 7	7
San Antonio	145.0	155.8	151.0	– 7	5
Texarkana	107.8	119.6	113.6	– 10	10
Tyler	127.0	140.9	132.2	– 10	5
Waco	132.3	149.1	144.7	– 11	11
Wichita Falls	116.1	124.7	121.8	– 7	9

years. National data include Alaskan reserves of oil and gas on the North Slope. Transport of those reserves to markets in the "lower 48" states is still several years away.

The shortage of crude oil is being alleviated by imports. Some natural gas is being imported from Canada by pipeline. Liquefied natural gas from North Africa is also being landed on the Atlantic coast.

Despite this importation of natural gas, the supply currently is so tight that major gas distributors have curtailed industrial sales and reduced or eliminated new connections. As a result, the price of natural gas is rising. So is the price of oil. OPEC (Oil Producing and Exporting Countries), whose membership consists of oil- and gas-exporting countries in the Near East and Africa owning most of the free world's known reserves of oil and natural gas, has successfully exerted pressure to raise the prices of their exports. It will continue to exert upward pressures on prices. The best way to improve our bargaining position is to increase our own reserves of oil and natural gas and reduce our dependence on imports.

The gas-supply situation is affecting the Texas petrochemical industry. Beginning in 1973 there will be a shortage of ethylene in this country. (Ethylene is used to make polyethylene plastics.) Most of the ethylene capacity needed to meet expanded demand ordinarily would be built in Texas. There will be some expansions of capacity, but not enough to alleviate the shortage. Lack of feedstocks is one of the reasons given for lack of sufficient expansion of ethylene capacity. Cheap Texas natural gas has been a major source of feedstocks for Gulf Coast ethylene plants.

Crude-oil runs to stills declined 4 percent in April to 112.4 percent of 1967 average monthly runs. This level of refinery activity was almost exactly the same as the level in April 1971. Despite this decline total refinery runs in the state during the first four months of 1972 averaged 1 percent above the January-April 1971 level of operations.

Total electric-power use in Texas rose 7 percent in April to a new high, 169.1 percent of 1967 base-year consumption. Strong increases in industrial, commercial, and domestic power use contributed to the increase. During the first four months of this year total electric-power use averaged 21 percent above the comparable 1971 period. Industrial power use averaged 15 percent higher. National consumption of electric power doubles every ten years. The doubling period for Texas—seven to eight years—is shorter, which makes the electric-utilities industry one of our strongest growth industries. If the battery-powered vehicle becomes an important mode of transportation nationally, electric-power demand for recharging batteries will soar, as will the fuel requirements of the generating plants.

HOURS AND EARNINGS IN TEXAS

Industry†	Average weekly earnings			Average weekly hours			Average hourly earnings		
	Apr[p] 1972	Mar 1972	Apr 1971	Apr[p] 1972	Mar 1972	Apr 1971	Apr[p] 1972	Mar 1972	Apr 1971
Manufacturing—total	$143.79	$142.62	$134.46	41.2	41.1	40.5	$3.49	$3.47	$3.32
Durable goods	145.25	145.18	136.61	41.5	41.6	40.9	3.50	3.49	3.34
Lumber & Wood Products	105.93	106.09	99.31	40.9	42.1	40.7	2.59	2.52	2.44
Furniture & Fixtures	98.03	97.91	94.18	38.9	38.7	38.6	2.52	2.53	2.44
Stone, Clay & Glass Products	142.25	143.99	132.28	43.5	43.5	43.8	3.27	3.31	3.02
Primary metal industries	169.33	165.65	151.70	41.1	40.8	41.0	4.12	4.06	3.70
Fabricated metal products	149.03	146.30	141.93	42.1	41.8	41.5	3.54	3.50	3.42
Machinery, except electrical	155.73	153.61	142.21	42.9	42.2	41.1	3.63	3.64	3.46
Oil-field machinery	170.40	168.73	153.30	42.6	42.5	41.1	4.00	3.97	3.73
Electrical machinery, equipment and supplies	127.75	130.38	123.55	40.3	41.0	39.6	3.17	3.18	3.12
Transportation equipment	173.87	178.05	162.38	41.3	41.6	40.8	4.21	4.28	3.98
Aircraft and parts	196.48	200.54	174.69	42.9	43.5	41.2	4.58	4.61	4.24
Other durable goods	115.44	116.24	114.16	39.4	40.5	39.5	2.93	2.87	2.89
Nondurable goods	141.58	139.38	132.33	40.8	40.4	40.1	3.47	3.45	3.30
Food and kindred products	127.19	123.19	120.54	41.7	41.2	41.0	3.05	2.99	2.94
Meat products	136.40	127.93	138.57	43.3	41.4	42.9	3.15	3.09	3.23
Textile-mill products	98.05	100.35	93.83	41.9	42.7	41.7	2.34	2.35	2.25
Apparel and other finished textile products	80.89	79.98	73.89	37.8	37.2	36.4	2.14	2.15	2.03
Paper & Allied Products	148.45	152.52	136.15	41.7	41.9	40.4	3.56	3.64	3.37
Printing, publishing, and allied industries	146.57	147.63	134.61	39.4	39.9	37.6	3.72	3.70	3.58
Chemicals and allied products	202.25	200.82	190.44	42.4	42.1	42.7	4.77	4.77	4.46
Petroleum refining and related industries	218.96	210.94	201.92	42.6	41.2	42.6	5.14	5.12	4.74
Leather and leather products	81.86	79.61	81.96	37.9	37.2	38.3	2.16	2.14	2.14
Other nondurable goods	147.74	141.70	131.25	44.1	43.2	41.8	3.35	3.28	3.14
Nonmanufacturing									
Mining	179.77	180.17	169.60	42.2	41.9	42.4	4.26	4.30	4.00
Crude petroleum and natural gas	182.28	182.65	172.57	42.0	41.7	42.4	4.34	4.38	4.07
Metal, coal, and other mining	145.67	145.46	127.28	45.1	45.6	43.0	3.23	3.19	2.96
Public utilities	161.18	157.16	140.54	40.6	40.4	39.7	3.97	3.89	3.54
Wholesale trade	147.08	144.38	132.87	41.2	40.9	39.9	3.57	3.53	3.33
Retail trade	99.37	98.64	92.09	36.4	36.4	36.4	2.73	2.71	2.53
Banking	110.49	104.54	101.35	38.1	36.3	37.4	2.90	2.88	2.71

† Data cover wage and salary workers only.
p Preliminary, subject to revision upon receipt of additional reports.
Source: Texas Employment Commission.

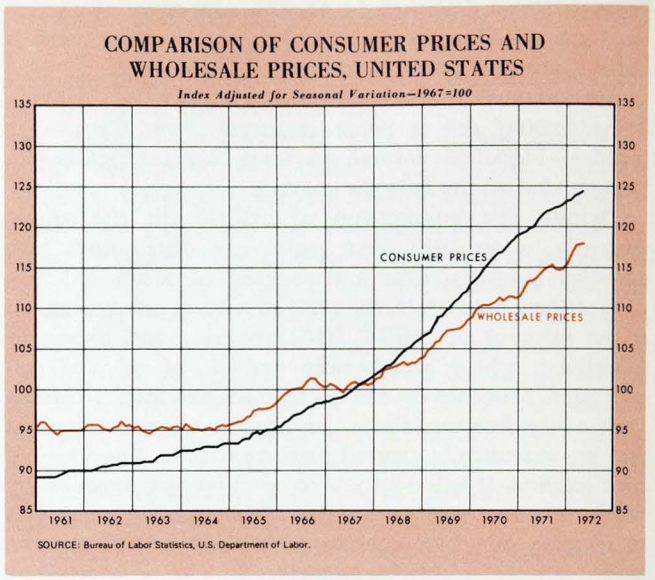
SELECTED BAROMETERS OF TEXAS BUSINESS
(Indexes–Adjusted for seasonal variation–1967=100)

Index	Apr 1972	Mar 1972	Year-to-date average 1972	Percent change: Apr 1972 from Mar 1972	Percent change: Year-to-date average 1972 from 1971
Estimated personal income	150.2[p]	152.1[p]	150.1	– 1	8
Business activity	155.8	165.5	159.4	– 6	9
Crude-petroleum production	120.1[p]	113.2[p]	112.3	6	– 2
Crude-oil runs to stills	112.4	116.9	114.3	– 4	1
Total electric-power use	169.1[p]	158.3[p]	161.7	7	21
Industrial electric-power use	146.7[p]	139.5[p]	144.1	5	15
Bank debits	183.0	194.3	186.7	– 6	14
Urban building permits issued	174.1	196.4	185.7	– 11	25
New residential	183.2	224.1	207.0	– 18	25
New nonresidential (unadjusted)	169.0	168.0	170.8	1	38
Total industrial production	132.4[p]	128.9[p]	127.6	3	6
Total nonfarm employment	115.1[p]	115.6[p]	115.4	**	3
Manufacturing employment	108.5[p]	108.7[p]	108.6	**	1
Total unemployment	149.2	151.6	157.2	– 2	– 10
Insured unemployment	184.1	159.0	166.1	16	– 18
Average weekly earnings–manufacturing	129.5[p]	129.4[p]	128.3	**	6
Average weekly hours–manufacturing	99.4[p]	99.0	99.0	**	1

[p] Preliminary.
** Change is less than one half of 1 percent.

Total urban building permits issued in Texas declined for the second consecutive month. Since reaching an all-time February peak of 212.4 percent of its 1967 base value the index has declined to an April level of 174.1 percent. This decline, like the surge to a February peak, is a reflection of a change in total value of new residential permits issued. April residential permits declined for the second consecutive month, dropping 18 percent. They dropped 5 percent in March after soaring to an all-time high of 236.7 percent of the 1967 base in February. Nonresidential building, at 169.0 of its 1967 average, was below its February peak of 205.4 percent of 1967, but was up 1 percent from April. This decline represents a readjustment to a lower level of activity from a peak level too high to be sustainable. Four-month averages of the index of total permits issued and its two component indexes are well above their comparable 1971 average values, an indication that construction activity in the state is still strong.

During the first third of this year, total nonagricultural employment in Texas has been on a plateau, hovering within a fraction of a percentage point of 115 percent of average monthly employment in the 1967 base year. April employment was down a fraction of a percentage point from March. The average value of the index for January-April was 3 percent above the comparable period of 1971.



Manufacturing employment for durable-goods industries in April was above the level for April 1971 in every category except the aircraft and parts industry, which was down 9,600 from last year. This industry has been hard hit by cutbacks in government orders. Employment in the nondurable-goods industries was up over April 1971 despite a mixed pattern of increases and decreases in employment for various component industries of this category. All other major categories of nonagricultural employment except mining were above April 1971. A decline in employment in oil and gas production reduced total mining employment in April. These gains helped to lift the 1972 index average above the average for January-April 1971.

Total unemployment was down 2 percent in April. The index for the January-April period averaged 10 percent below the same period of 1971.

Insured unemployment was up in April. The index averaged 18 percent below the first four months of 1971 during the January-April period of this year.

April indexes of average weekly hours and earnings were virtually unchanged from March. Average values of these indexes show a 6-percent rise in average earnings, due largely to increased hourly payrates. Average hours worked for January-April were up only 1 percent over last year.

As the national economy continues to move upward, Texas economic activity will move upward with it. Avoid-

WEEKLY DEPARTMENT-STORE SALES IN FOUR TEXAS METROPOLITAN AREAS

Metropolitan areas	Percentage change in dollar volume of retail sales from same period a year ago: One week ended Apr 29	Apr 22	Apr 15	Apr 8	Four weeks ended Apr 29, 1972	Jan 3, 1972 to Apr 29, 1972
Dallas	6	6	18	– 3	8	12
El Paso	– 1	9	– 2	– 19	– 4	4
Houston	8	10	14	– 9	5	12
San Antonio	5	5	14	– 19	**	5

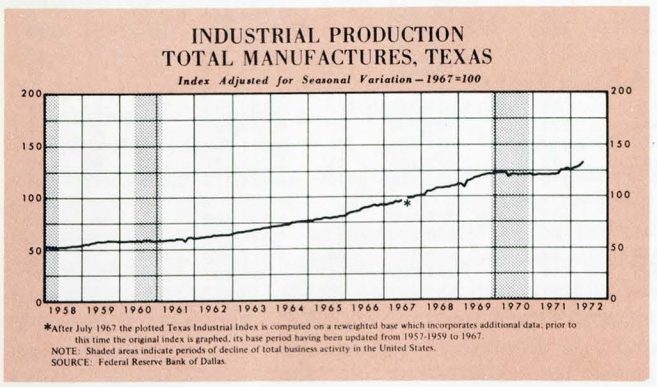
** Change is less than one half of 1 percent.
Source: Research Department, Federal Reserve Bank of Dallas.

NONAGRICULTURAL EMPLOYMENT SELECTED LABOR-MARKET AREAS

Labor-market area	April 1972	March 1972	April 1971	Anticipated July 1972
Abilene	39,545	39,395	38,180	39,675
Amarillo	61,900	61,790	62,190	60,730
Austin	144,650	144,100	138,650	140,100
Beaumont-Port Arthur-Orange	121,700	121,400	119,800	121,500
Brownsville-Harlingen-San Benito	42,720	42,510	39,880	44,110
Corpus Christi	100,140	100,320	99,950	101,040
Dallas	734,500	731,500	711,000	745,100
El Paso	125,850	125,850	121,700	126,450
Fort Worth	291,900	289,700	294,300	292,000
Galveston-Texas City	62,100	62,250	60,750	62,550
Houston	902,000	900,000	871,100	906,100
Laredo	25,845	25,470	25,645	25,440
Longview-Kilgore-Gladewater	35,730	35,490	35,690	35,570
Lubbock	69,625	69,900	67,670	68,135
McAllen	44,170	44,660	48,130	42,810
Midland-Odessa	62,130	61,760	61,750	62,080
San Angelo	23,930	23,975	23,830	23,695
San Antonio	306,450	305,850	299,800	311,100
Texarkana	39,950	39,810	39,640	40,230
Tyler	40,640	40,110	38,990	40,610
Waco	59,280	58,860	58,170	58,700
Wichita Falls	43,155	42,975	42,700	43,720
Total, labor-market areas	3,377,910	3,367,675	3,299,515	3,391,445

Source: Texas Employment Commission.

ance of a resurgence of inflationary expectations is important. History tells us that periods of protracted rapid inflation have always been followed by severe depressions. The absence of a serious depression since World War II is no assurance that unwise credit and fiscal policies could not produce another steep, prolonged, cyclical decline in economic activity. In April the consumer price index rose only .2 of a percentage point, a 2.4-percent annual growth rate. Wholesale prices rose .1 percent, a 1.2-percent annual growth rate. During the first quarter the Gross National Product Price Deflator, an index of prices of all goods and services produced or rendered in the nation, rose at a 6.25-percent annual rate largely because of a pay raise for federal employees. An increase of such magnitude in the Deflator is not expected to occur again. In the fourth quarter of 1971 the Deflator rose at an annual rate of only 1.7 percent. In the future it should be possible to keep changes in the price index within reasonable bounds.



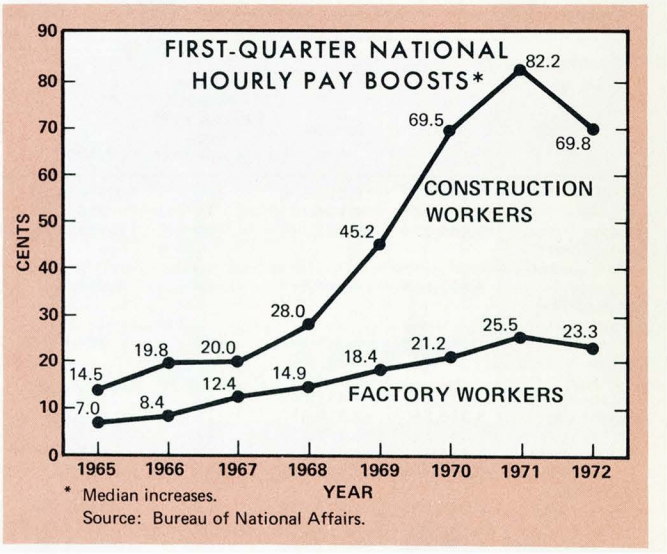
TEXAS CONSTRUCTION*

N. Carroll Mohn

Changes taking place in the April levels of Texas building intentions suggest that the construction boom for the state may be passing its peak, although prospects for a strong year of building remain intact.

For the second straight month the seasonally adjusted index of total construction authorized declined, dropping off from March readings by over 11 percentage points to a reported $287.5 million. This aggregate slow-down during April was paced by dips of 18 percent for the index of residential construction and 22 percent for the index of additions, alterations, and repairs; nonresidential building, the only index not adjusted for seasonal variation since it has no specific seasonal trend, progressed only marginally, by 1 percent.

The slacking in estimated values of building authorized in Texas was not unanticipated because year-to-date comparisons with 1971, the record year historically, have been running high. A 28-percent increase in the dollar volume of total construction for the four-month period is composed of positive movements in residential (25 percent), nonresidential (40 percent), and additions, alterations, and repairs (5 percent) sectors.



The recent slide in new construction authorized in the state appears to have followed the national trend. Housing starts throughout the United States slowed 10 percent in April for a second consecutive monthly decline. Geographically, however, starts were off in all areas of the country but the deep South, where they increased slightly.

A plausible explanation for the similar drops at both the Texas and the national levels is that the tremendous push behind government housing programs has diminished some-

*Data used in this article come only from building-permit-issuing urban places.

what. Since evidence shows that the economy is picking up steam in other areas now, the government no longer perceives the need for induced stimulus from homebuilding.

Texas' construction activity continues to be centered principally in major metropolitan areas. Building authorized in the twenty-five standard metropolitan statistical areas in April accounted for 91 percent of the total for the state. Fifty-two percent of the total construction for the month, however, was in three areas—Houston, Dallas, and San Antonio; when Austin, Fort Worth, and Odessa values are included this figure expands to over 69 percent. In light of the state-wide decline, a surprising total of ten of the principal metropolitan centers registered relative gains in construction authorized for April.

Homebuilding in Texas during April continued to be dominated by the dollar value for one-family dwellings at 69 percent; apartments accounted for 29 percent of the total value authorized in residential construction, with duplexes contributing the residual 2 percent.

A noticeable contrast with these figures is provided by the proportions of numbers of units authorized for April: one-family dwellings (49 percent), apartments (50 percent), and duplexes (1 percent). The demand for single-family housing has historically been slipping because the large number of young adults in the population is greatly altering the character of the housing market. Young families, generally limited in income and small in size, seek to settle in rented dwellings or to purchase less expensive quarters. Furthermore, today's new single-family houses are often priced out of reach for this market segment.

Some national analysts have postulated that a shortage of effective demand will be the most troublesome housing problem during 1972. In regard to Texas, the analysts agree that the rapid rate of 1971 production eliminated many of the pockets of critical shortage and that in some small market areas, a measure of overbuilding is occurring. But the existing demand in the state probably is sufficiently great to absorb readily the amounts of production required for the anticipated aggregate gains this year.

A very real question, however, is embodied in fears of renewed inflation that persist in the debt market. While conventional mortgage rates on new homes have drifted down to around 7.5 percent, indications are rates have set their low for the year. The beginning trend toward gradually higher rates is due largely to investor jitters about persistent inflation that can feed on itself. Such a scenario might well include weakening of the economic recovery by pinching home buyers as the mortgage rates rise.

NONFARM BUILDING AUTHORIZED IN STANDARD METROPOLITAN STATISTICAL AREAS[P]

(Values in dollars)

Area	Total construction*			Nonresidential			New dwelling units					
											Percent change	
	Apr	Jan-Apr	Percent change Jan-Apr 1972 from	Apr	Jan-Apr	Percent change Jan-Apr 1972 from	Apr 1972		Jan-Apr 1972		Jan-Apr 1972 from Jan-Apr 1971	
	1972	1972	Jan-Apr 1971	1972	1972	Jan-Apr 1971	Value	No.	Value	No.	Value	No.
Abilene	2,533,027	6,993,364	300	2,176,981	3,741,270	542	287,527	11	2,889,527	164	210	235
Amarillo	2,060,944	9,180,117	– 15	228,324	2,362,189	– 25	1,676,200	62	5,836,200	247	– 17	– 38
Austin	19,049,274	82,045,770	56	6,174,404	19,914,764	3	12,025,000	879	55,628,000	3,902	82	68
Beaumont-Port Arthur-Orange	5,892,868	14,245,817	30	1,013,503	2,829,581	– 11	4,426,932	407	9,919,932	769	55	42
Brownsville-Harlingen-San Benito	1,091,140	7,319,297	107	380,135	2,618,489	78	494,600	51	3,894,600	414	163	182
Bryan-College Station	371,070	4,491,808	41	190,500	1,136,715	34	165,920	8	3,104,920	341	47	62
Corpus Christi	5,216,556	29,818,417	12	819,234	7,062,614	– 29	3,783,854	129	18,667,854	1,310	140	103
Dallas	52,383,378	274,941,018	31	16,754,372	131,128,150	77	30,831,315	1,791	128,022,315	8,053	6	– 30
El Paso	8,466,444	62,421,370	63	587,570	19,625,985	56	7,062,650	504	39,838,650	2,972	82	86
Fort Worth	16,074,964	85,282,891	– 15	4,458,525	24,378,857	– 44	10,519,437	518	56,343,437	2,948	10	– 19
Galveston-Texas City	3,326,230	13,475,445	63	1,101,274	5,883,528	52	2,032,910	200	6,703,910	603	113	87
Houston	56,582,757	266,645,929	8	21,989,765	123,043,070	16	25,299,050	2,295	101,302,050	9,911	– 1	– 3
Killeen-Temple	5,108,860	13,967,883	59	2,407,264	4,350,188	387	2,505,000	148	8,363,000	481	14	– 27
Laredo	731,720	5,795,600	121	593,800	1,843,550	237	111,040	15	3,887,040	336	94	17
Lubbock	3,538,150	17,240,261	– 4	783,997	4,806,610	– 8	2,265,050	122	10,933,050	524	– 7	– 21
McAllen-Pharr-Edinburg	2,312,650	9,905,667	72	513,050	2,184,936	28	1,653,320	118	6,287,320	508	83	75
Midland	660,699	9,307,182	77	119,450	5,731,834	134	397,000	10	2,717,000	95	26	1
Odessa	11,738,580	14,275,601	469	10,987,035	12,143,160	2,057	547,300	40	1,495,300	87	2	– 4
San Angelo	330,227	2,493,734	– 47	23,128	403,467	– 72	208,555	15	1,745,555	109	– 42	– 68
San Antonio	41,154,704	90,373,164	97	32,500,520	53,417,309	278	5,465,718	552	26,921,718	2,533	43	48
Sherman-Denison	2,123,380	5,041,978	**	1,729,635	2,822,380	101	344,500	16	1,805,500	91	– 46	– 61
Texarkana	934,926	3,499,807	– 27	242,600	1,832,147	62	650,000	73	1,434,000	150	– 51	– 34
Tyler	1,265,815	5,385,397	23	467,500	1,437,950	81	616,450	30	3,287,450	194	6	– 16
Waco	3,559,850	10,951,589	8	1,263,146	3,799,363	– 14	1,898,503	161	5,807,503	499	30	35
Wichita Falls	964,338	5,568,866	– 34	296,848	1,591,414	– 61	555,827	36	3,610,827	292	**	– 12

[P]Preliminary
*Includes additions, alterations, and repairs.
**Change is less than one half of 1 percent.

ESTIMATED VALUES OF BUILDING AUTHORIZED IN TEXAS*

Classification	Apr 1972 (thousands of dollars)	Jan-Apr 1972 (thousands of dollars)	Percent change: Apr 1972 from Mar 1972	Percent change: Jan-Apr 1972 from Jan-Apr 1971
ALL PERMITS	287,480	1,219,453	− 15	28
New construction	260,227	1,109,738	− 14	31
Residential (housekeeping)	137,091	611,902	− 24	25
One-family dwellings	96,700	402,621	− 21	37
Multiple-family dwellings	40,391	209,281	− 28	7
Nonresidential buildings	123,136	497,836	1	40
Hotels, motels, and tourist courts	2,346	24,281	− 75	8
Amusement buildings	1,267	8,928	− 33	− 44
Churches	2,845	11,351	79	− 8
Industrial buildings	5,645	28,035	− 20	− 11
Garages (commercial and private)	7,341	28,671	454	137
Service stations	759	4,480	− 39	− 33
Hospitals and institutions	6,534	21,434	18	25
Office-bank buildings	16,466	129,946	− 61	35
Works and utilities	1,800	16,581	− 82	4
Educational buildings	24,338	73,858	70	45
Stores and mercantile buildings	49,768	136,948	108	119
Other buildings and structures	4,027	13,323	− 4	6
Additions, alterations, and repairs	27,253	109,715	− 22	5
SMSA vs. NON-SMSA				
Total SMSA†	261,519	1,116,030	− 15	28
Central Cities	190,434	782,351	− 11	34
Outside central cities	71,085	333,679	− 24	17
Total non-SMSA	25,962	103,424	− 13	28
10,000 to 50,000 population	14,668	60,997	− 24	51
Less than 10,000 population	11,294	42,427	7	4

* Only building for which permits were issued within the incorporated area of a city is included. Federal contracts and public housing are not included.

† As defined in 1970 Census.

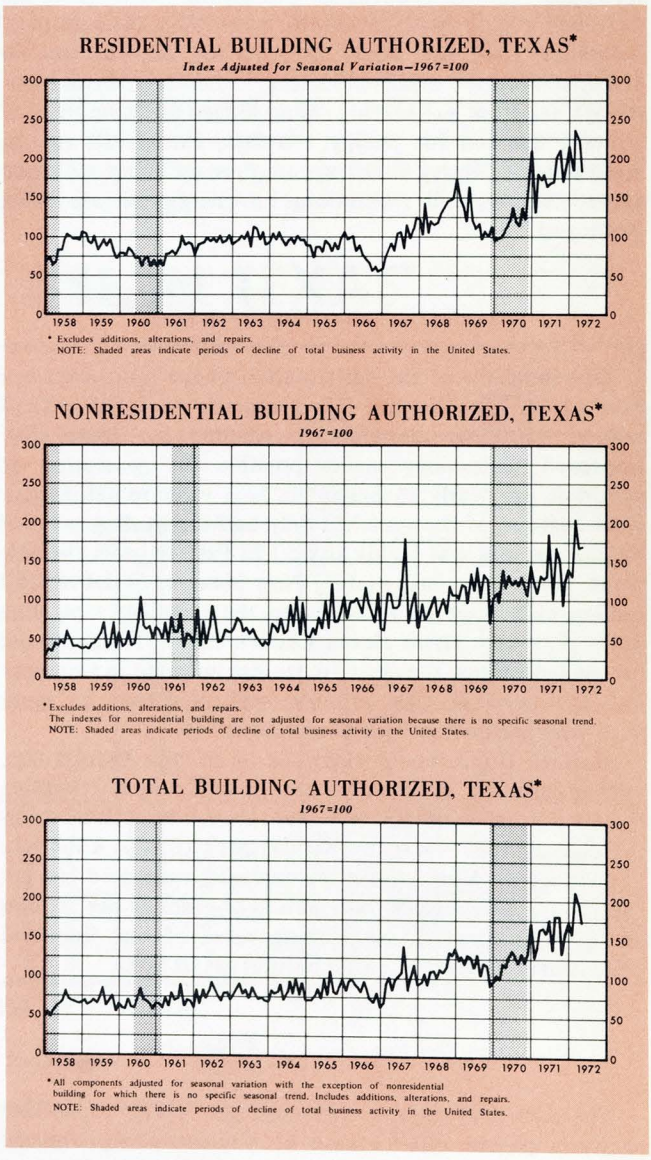
Source: Bureau of Business Research in cooperation with the Bureau of the Census, U.S. Department of Commerce.

In nonresidential building the fastest-paced market in April was commercial garages, which exceeded its March plans nearly twelvefold (1053 percent). Other activity highlighting the nonresidential type of construction included sharp rises in intentions to build stores and mercantile buildings (108 percent), churches (79 percent), and educational buildings (70 percent). Hotels, motels, and tourist courts (-75 percent), amusement buildings (-33 percent), industrial buildings (-20 percent), and office-bank buildings (-61 percent) all remained weak during the month.

With the recent signs of possible leveling out in construction intentions, a campaign to end the relentless pay spiral in the building trades is beginning to merit industry-wide attention. The unique aspect of this drive is the source of its momentum—union and contracting leaders who are becoming increasingly convinced that construction laborers are squeezing themselves right out of jobs in many areas by their prices. This activity, a revolution in union tactics, is surprising since pay boosts for construction workers have declined in 1971-1972 first-quarter comparisons.

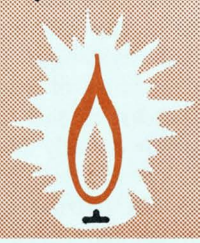
Organized construction workers are being hurt by the big wage raises won by building-trades unions in recent years. Underlying the current campaign is an admission by labor leaders that nonunion workers are making sizable encroachments in the building industry with lower pay costs and no job regulations. Some union work rules have been enabling the entry of many nonproductive employees to draw pay checks, so that economic gains derived from new technology are entirely dissipated.

The outlook, then, is this: The rise in Texas building may be almost over, but activity this year will probably register moderate increases above record 1971 levels if inflation can remain fairly well checked. The rate of advance in construction costs should decelerate since repercussions from featherbedding are being felt by industry trade unions, a fact which should help sustain this temperate, but bullish forecast for the state's construction industry.

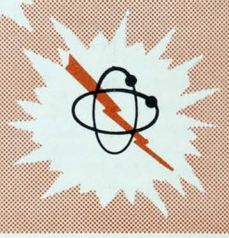


Texas Energy Industries, 1972

Robert H. Ryan



Unless petroleum exploration is given more effort, Texas and the nation may face power shortages.



One of the most worrisome aspects of the current concern with man's environment is the heavy dependence of modern life on wholesale consumption of energy. Texas was a remote agricultural province until the discovery of its seemingly endless reserves of petroleum. Since then the state and region have developed more than their share of industries that use large amounts of oil and gas or petroleum-derived electricity. Today reserves of fossil fuels, though far from exhausted, are no longer adequate to meet growing demand for energy. Further, the effects on the atmosphere of heavy fuel consumption are being examined apprehensively, and restrictions on energy use are being developed.

Synthetic Natural Gas from Coal

One indicator of the gas situation in the Southwest is a plan of El Paso Natural Gas Company to build a $250 million plant to manufacture pipeline gas from coal. Improved technology makes possible the generation of synthetic gas nearly equivalent in heat value to natural gas. (The coal gas of the past had only half the heating value of natural gas and was highly toxic.) El Paso expects the new plant, located in northwestern New Mexico, to deliver 250 million cubic feet of gas daily to the company's pipeline network, which serves eleven western states. The synthetic gas, made through the use of a process invented in Germany but improved in this country, will doubtless be more expensive than natural gas at current prices.

Howard Boyd, board chairman of El Paso Natural Gas, explains that by making coal gas the company is extending the time it can maintain deliveries through its system. As to the cost of the "synthetic natural gas" (SNG), Robert L. Purvin, a New York consulting engineer, estimated last fall that it might typically cost about one dollar per million Btu's, approximately the heating value of one thousand cubic feet (one Mcf) of either natural gas or SNG.

High Gas Prices and Short Supplies

The fact that such a high-cost gas facility is nearing reality helps bear out forecasts by *The Oil and Gas Journal* of rapidly rising gas prices. "Years of repressive price policies practiced by the Federal Power Commission" are blamed by the *Journal* for the immediate shortage of gas. As a result of the supply squeeze, gas distributors are making contracts to buy supplemental supplies of gas at prices three or four times those of conventional domestic natural gas. In 1970 the average wellhead price of Texas natural gas was 14.4 cents per Mcf, and the Louisiana price was 19.3 cents. (The difference reflects the fact that most Louisiana gas has been developed more recently and contracted at higher prices.) By 1972 interstate pipeline gas from South Louisiana was selling for 26 cents, and nonregulated intrastate buyers there were lining up new supplies by paying prices averaging 35 cents. Last winter domestic natural gas was being delivered to New York (including transportation charges) at 42 cents, but even so there was growing interest in tanker shipments of liquefied natural gas at prices around 85 cents per Mcf.

The heavy criticism leveled at the Federal Power Commission results from the Commission's past policy of protecting the interests of gas consumers by keeping gas prices at levels that evidently discouraged exploration for new gas.

Though there is no prospect that Texas will need imported gas or SNG in the immediate future, it will be a stroke of good fortune if nuclear-energy technology develops rapidly enough to fill the growing energy needs before short supplies and rising prices of gas inflict a serious economic squeeze on the state's utilities and manufacturing industries.

Peak Loads from Air Conditioning

Past brownouts and blackouts in the Northeast have been due chiefly to underplanning of electric capacity, not to fuel shortages. One factor has been the growing popularity of air conditioning in the northeastern states, which electric companies seem not to have forecasted accurately. In Texas, though, utility companies have planned realistically enough that they now have perhaps 15 percent capacity beyond their peak load requirements. In a state where demand has doubled about every seven years, continued expansion of capacity has been vitally necessary.

In some regions of the nation, air conditioning did not account for much power use until recent seasons, and the rapid development of a summer peak in power use apparently caught planners off guard. Texas electric utility companies have long been accustomed to the knowledge that summer loads will be higher than those at other seasons.

As long ago as 1936 Dallas registered a summer peak load, due to the enormous air-conditioning capacity put into operation that year at the Texas Centennial Exposition. In Texas as a whole air conditioning was not in heavy enough use to bring about summer peaks in power use until the 1940s. During the hottest days of the year air conditioning is responsible for more than one third of all electric-power use in Texas, and August demand is typically 50 percent higher than that during the winter months. (Before the time of air conditioning, December, with its long evenings and holiday lighting, was the peak month.)

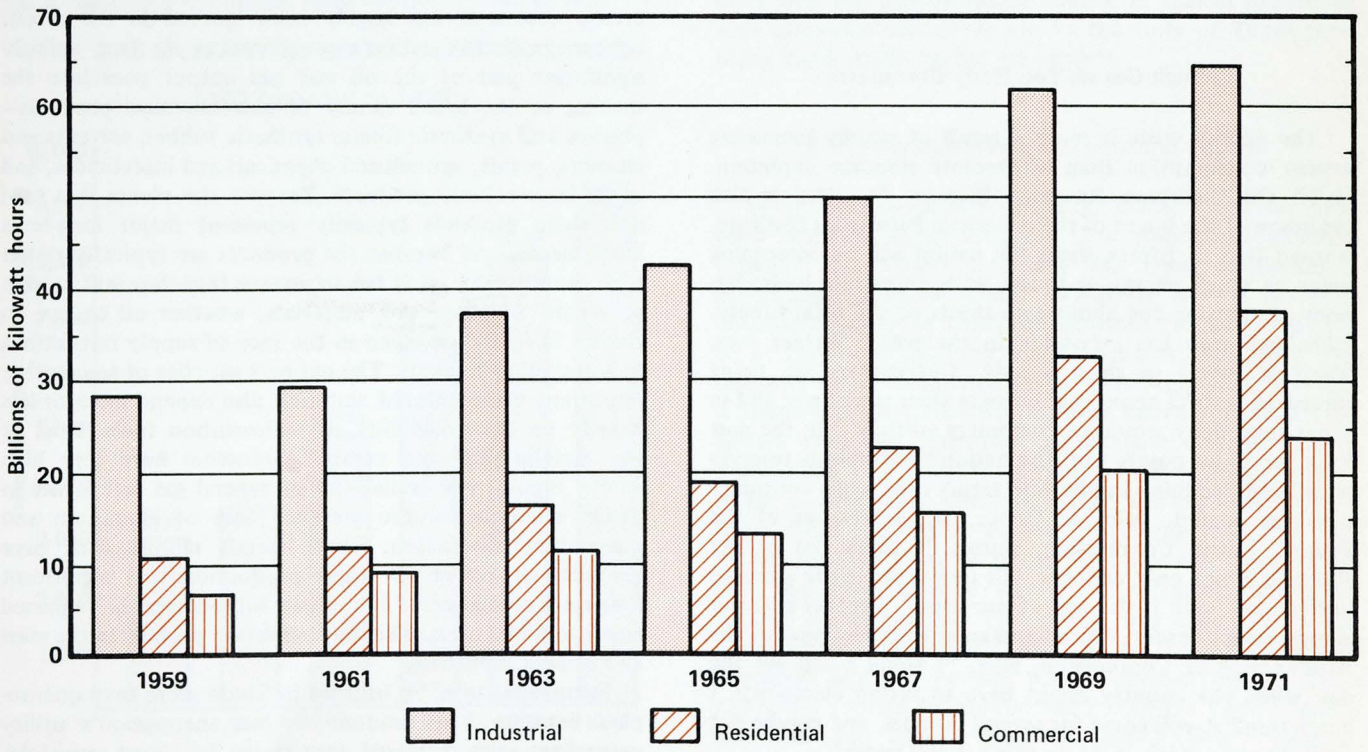
TIS – Texas' Antiblackout Network

One safeguard of Texas electric service is the Texas Interconnected System (TIS), linking the utilities that provide most of the state's electric power. Members of the TIS group maintain within their individual systems enough generating capacity to meet their own needs under normal conditions. In an emergency, the interconnected transmission lines transfer stopgap power from other systems. The TIS companies have aggregate generating capacity well over 20 million kilowatts, enough to permit economies of large-scale operation.

The growth of those companies and other public and private power suppliers in Texas is illustrated by the chart below. Industrial power use in the state has more than doubled since 1959, including consumption of electricity generated by industrial plants for their internal use. Notable among plants that operate their own generators are the aluminum-reduction facilities, which use electric power in such large quantity that a strike in the aluminum industry noticeably depresses the total amount of power used in Texas.

Growth of electric-power consumption by commercial and residential utility customers has been even greater than the increase in industrial power use. One major factor in the expansion of commercial power consumption has been the popularization of enclosed shopping malls with air-conditioning plants that must be capable of cooling immense volumes of air not only in stores but also in two- or three-level galleries connecting the stores. Of course residential air conditioning became common for the first time during the 1960s, and the use of other major electric household appliances was encouraged by utility companies' offering of special rates to occupants of all-electric homes.

ELECTRIC-POWER USE IN TEXAS*



* Additional minor amounts of electric power are used chiefly for street and highway lighting.
Source: American Gas Association.

The chart showing electric-power consumption does not show the amounts used for miscellaneous purposes, the most important of which is street and highway lighting. That category also approximately doubled during the 1960s.

Significantly, Texas is not vulnerable to the sort of chain-reaction blackout that left New York and other northeastern areas without lights or power several years ago. The interconnected system in that region was designed to transfer power from one utility service area to another routinely during times of peak demand. In such a situation a relatively minor failure can overload the entire complex, triggering automatic cutoff devices.

Even before the northeastern blackout, Texas utility planners had urged that the Federal Power Commission require the fail-safe system used in Texas. Today the FPC does require the Texas-type interconnections in other regions. Only utility systems operating entirely within Texas are interconnected through the TIS, because a larger power grid might reach technically unmanageable proportions.

Two Texas utility companies and three government authorities are looking to the possibility of having a nuclear power-generating plant in operation by 1980. Houston Lighting and Power Company, Central Power and Light Company, the Lower Colorado River Authority, and the municipal power systems in San Antonio and Austin are participating in the study. Houston Lighting and Power Board Chairman P. H. Robinson has called nuclear power "the most feasible means" of meeting future electric-power demand in his company's service area.

Enough Gas vs. Too Many Consumers

The energy crisis is more a result of rapidly increasing energy consumption than of absolute resource depletion. Mobil Oil Chairman Rawleigh Warner, Jr., who is also chairman of the board of the American Petroleum Institute, warned that in fifteen years the nation will be consuming twice as much energy as today, with petroleum hydrocarbons accounting for about two thirds of the total supply. "We have seen the inevitable in the past," Warner says. "Natural gas is in short supply. Distributors are being forced to restrict some customers in their use of gas, and in some areas deny would-be customers entirely." In the past four years, he points out, the nation's natural-gas reserves have been declining in absolute terms even while consumption has soared. John A. Carver, Jr., a member of the Federal Power Commission, warns, "I think our energy shortage is not only endemic, it's incurable. We're going to have to live with it the rest of our lives." Another national energy policy leader, Chairman James R. Schlesinger of the Atomic Energy Commission, says, "I think I can see the day when the country might have to ration electricity. I don't think it will come for several decades, and maybe not until the year 2000, but I do think it will come."

Within the lifetime of a forty-year-old American the nation's population has grown 70 percent but its energy consumption 310 percent. Within the next decade an estimated total of 50 new oil refineries and 300 new power plants may be needed, in spite of the dwindling reserves of a domestic fuel for the plants. Even the discovery of an estimated 30 billion barrels of oil and over 20 trillion cubic feet of gas in Alaska is only a temporary windfall, for last year the nation consumed 5.6 billion barrels of oil and 22.1 trillion cubic feet of natural gas.

The Fuel That Is Not Burned

Texas, of course, is one of the nation's two largest gas-producing states, running neck-and-neck with Louisiana. Louisiana, however, ships out by pipeline the great majority of its production, while Texas in 1970 showed marketed production of 8.3 trillion cubic feet of gas but net exports to other states of only 3.7 trillion cubic feet. Texas, then, has marketed production amounting to roughly two fifths of the nation's total amount. Nationally about three quarters of the marketed production of natural gas is sold by utility companies, but in Texas the ratio is far lower. A very large part of Texas natural gas goes into industrial uses without having been sold by utility companies. In fact, some gas utility companies are engaged in the manufacture of nonfuel products with the use of gas that they produce. For example, a manufacturing subsidiary of Lone Star Gas turns out ammonia and other nitrogen products at a plant located in East Texas near major gas reserves held by Lone Star.

The competition between fuel and nonfuel uses of energy resources has largely been ignored in the recent concern with the nation's energy prices. In fact, a fairly significant part of the oil and gas output goes into the making of the broad variety of petrochemical products—plastics and synthetic fibers, synthetic rubber, solvents and cleaners, paints, agricultural chemicals and insecticides, and other large-volume products. Because the plants that turn out these products typically represent major long-term investments, and because the products are typically rather high in unit value, it is fair to assume that they will be able to secure adequate raw materials, whether oil or gas, to remain in operation, even in the face of supply restrictions in some other markets. The nation's supplies of some other important manufactured materials also depend more or less heavily on the availability of hydrocarbon fuels. Most of the metallurgical and ceramic industries have very high energy inputs. The availability of natural gas and lignite in Texas accounts for the presence here of aluminum and magnesium production. These metals require such large amounts of power for their production that significant long-term escalation of fuel prices will necessarily be passed along to metal users. The same situation prevails in the glass and cement industries.

Natural-gas sales by utilities in Texas more than quadrupled between 1945 and 1970, but the nation's utility natural-gas sales increased even faster, by about sevenfold. Even in the 1940s most parts of Texas were already supplied with utility gas lines, but this was not true in the

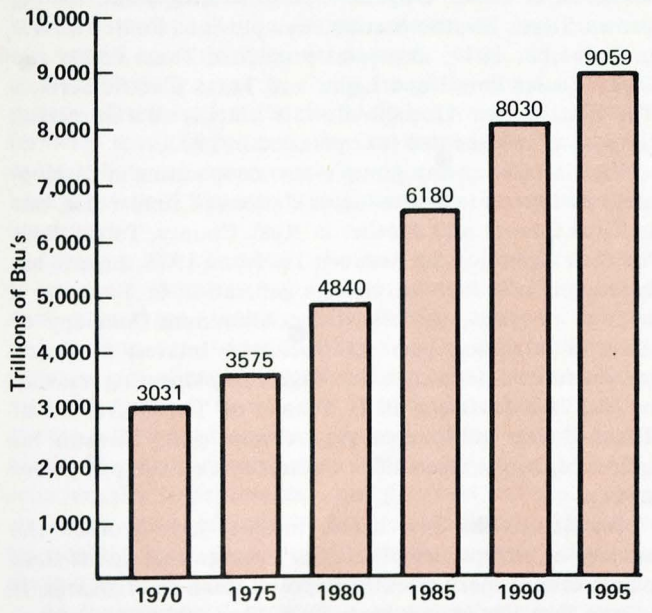
nation as a whole. Natural gas was not introduced in New England until the early 1950s, and not much gas was used in such states as New York, Michigan, Wisconsin, and Minnesota until around the same time. Natural gas came to the Pacific Northwest even later. With the extension of the nation's long-haul pipeline system into previously undeveloped market areas, natural-gas consumption increased enormously. Per capita consumption was gaining at the same time, with the popularization of year-round air conditioning powered by gas, as well as other gas appliances. The growth of natural gas as a domestic and commercial fuel helped develop strong and widespread pressures to keep gas prices at low levels, even at a time when the discovery of new gas reserves was becoming increasingly difficult and much more expensive.

Gas sales by utility companies in the West South Central states, as projected by the American Gas Association (AGA), are charted below. For the four-state region, the AGA forecasts increases of 4.4 percent in industrial gas sales and 4.9 percent in sales to both commercial and residential customers. The total growth in sales, 4.5 percent, is greater than that foreseen for most parts of the nation but significantly less than the 5.1-percent and 5.0-percent increases predicted for the South Atlantic and New England regions. The AGA estimates, expressed in Btu's, can be converted into the volumes of gas represented by assuming that the typical pipeline natural gas has a heating value of 1,032 Btu's per cubic foot. Thus trillions of Btu's multiplied by 969 represent gas volume in millions of cubic feet.

One economist from the Northeast, where a great deal of gas is consumed but almost none produced, advised that the

TOTAL GAS SALES, WEST SOUTH CENTRAL STATES*

1970 Projected to 1995



*Arkansas, Louisiana, Oklahoma, and Texas
Source: American Gas Association.

petroleum industry had demonstrated its extravagance for years by drilling many dry holes. The industry has in fact been drilling fewer dry holes in recent years because fewer exploratory wells have been drilled. Between 1955 and 1970 the number of exploratory holes drilled in the nation declined from 14,937 to 7,693. In spite of this evidence of increasing caution in choosing the exploratory drilling sites, the industry's success ratio has declined. In 1955 nearly 21 percent of the exploratory wells drilled were productive. By 1970 the ratio was down to 16.5 percent. Further, many of the so-called exploratory holes actually represented drilling in previously unproven parts of established fields. Only 9.7 percent of all new-field wildcats were productive. As a result of the increasing use and lagging discovery of natural gas, the nation's reserves have fallen from 289 trillion cubic feet five years ago to 247 trillion cubic feet at the beginning of 1971. If next winter is a cold one, it may well bring the nation's natural-gas flow to its all-time peak, for production has already been pressed almost to the limit. Even during the past one or two heating seasons the demand for gas was so high that some distributing companies were turning down new customers and restricting old ones.

The question rises then as to whether Texas is threatened with a gas shortage. Some Texans comfort themselves with the insular notion that Texas still has more than enough gas for its own needs and that it will be possible simply to cut back exports in gas to other states. Of course the facts are not that simple. Pipeline companies that ship gas out of Texas are protected by long-term contracts with gas producers. Therefore much of the gas still underground in Texas is already, in effect, sold for out-of-state use. Obviously the constitutional injunction against interfering with interstate commerce blocks the state of Texas from doing much to discourage gas exports.

Rising Standards of Environmental Control

Environmental effects of energy transfer and use have been receiving sharp attention. For some time Houston Lighting and Power Company has been developing a generating station at Cedar Bayou, to have a potential ultimate capacity of 5 million kilowatts. Part of the project is a 2,600-acre cooling pond designed to lower the temperature of water used in the generating plant before it is discharged into Cedar Bayou. More than a year before the system went into operation, the company contracted with Texas A&M University for a study of the ecological effects of the cooling-water complex, which was expected to draw water from the bayou without disturbing waterfowl and marine organisms and to return the water after its temperature had been lowered enough to safeguard the biotic balance of the bayou. The system was approved by the Texas Water Quality Board and also by the Army Corps of Engineers and the Federal Water Pollution Agency. Now the newly formed Environmental Protection Agency (EPA) has filed suit against Houston Lighting and Power to discontinue use of the cooling system by 1974. The legal authority of the EPA to enforce such policies is not yet

fully clarified, but such serious discontinuities in government policy make even more difficult the hard job of reducing environmental pollution.

Houston Lighting and Power has just been cited as one of the nation's "cleanest" utility companies as measured by the air pollutants vented by its plants. All the electric utility companies in the Southwest, however, are better than average in that respect, for they are fueled more or less entirely by natural gas. At least they spare southwestern cities the heavy pall of coal and fuel-oil smoke that has brought angry attention to some of the nation's generating plants. The utility companies of this region have not yet done as much as they may be required to do to control the release of invisible but irritating nitrogen compounds into the air.

Another environmental problem of increasing concern is the problem of disposing of radioactive wastes from nuclear-power plants. Even though the Southwest may be the last part of the nation to depend heavily on nuclear power, the beginnings of this new kind of energy transfer are already in sight. In southern Louisiana, near New Orleans and not far from some of the nation's richest gas fields, a nuclear-power plant will soon be under construction. Planners explain that not enough uncommitted gas is left to support the long-term investment represented by a major power station to serve the New Orleans metropolitan area.

The National Academy of Sciences has recommended that radioactive wastes from plants such as the one to be built in Louisiana might be deposited in geologically stable salt formations far underground. One such formation is located in Kansas, where there is no prospect of earthquakes that might rupture the depository and spill dangerous materials. Some critics, though, are not entirely confident that any safe hiding place exists for wastes that will continue to emit lethal radiation for at least 25,000 years.

Fusion, Possibly the Ultimate Source

By the time Texas depends heavily on nuclear power the systems of generating it may be much more sophisticated and possibly less hazardous. Ten of Texas' investor-owned utility companies have organized the Texas Atomic Energy Research Foundation, which is sponsoring research at The University of Texas in controlled fusion for production of electricity. The *fusion* reaction, first known to the public when it was harnessed in the H-bomb, is infinitely more efficient than the *fission* (or A-bomb) reaction.

The latter depends upon the availability of uranium or other fissionable materials, which are available in substantial but not unlimited quantity. The fuel for fusion, deuterium, is present in water and is virtually unlimited in supply. Releasing this abundant source of power, however, requires the construction of what amounts to a miniature sun, a unit that can operate at temperatures of 60 million degrees centigrade, or higher. The technical problems involved in this system are so formidable that policy-level scientists and engineers believe that another generation of higher-efficiency "breeder reactors" using fission energy will come into use before the practical use of fusion is in sight. Advanced versions of the Russian Tokamak plasma-containment unit for developing and controlling the fusion process do represent a clear step toward what appears to be the ultimate goal in energy production. Such a super-Tokamak is now installed on the Austin campus of The University of Texas.

Dr. Anthony Robson, University of Texas scientist who designed the Texas Tokamak, believes power production from the device may come as soon as 1978. The $1 million-unit, housed in the University's new Physics-Mathematics-Astronomy Building, is an enormous finned doughnut of aluminum and quartz coiled with copper and powered by 350 half-ton batteries. Hydrogen is heated within the device to a temperature of perhaps 100 million degrees, at which point it exists not as a solid, liquid, or gas, but as a "plasma." When the plasma is contained for about a second by the magnetic field of the Tokamak, the nuclei of heavy hydrogen (deuterium) will fuse, releasing enormous measures of energy. University of Texas scientists have already learned how to improve the heating potential of the Tokamak. The machine now in use in the experiment will later be replaced by a larger Tokamak capable of producing higher temperatures for longer times. By the middle of the next century, Robson foresees, fusion power will be in use commercially.

Lignite from Texas Strip Mines

Perhaps the most significant practical development in the Texas electric utility industry is the revival of interest in lignite as a fuel. In Freestone County, about eighty miles southeast of Dallas, a lignite-fired generating plant, the Big Brown Steam Electric Station, was put into limited service in December 1971, as a joint project of Texas Power and Light, Dallas Power and Light, and Texas Electric Service. The first of two 475,000-kilowatt units is now in service; the second is scheduled for operation in 1973.

The three-company group is also cooperating in development of two more lignite-fueled stations of similar size, one in Titus County and another in Rusk County. Target dates for their operation fall between 1975 and 1978. Lignite has been used as a fuel for electric generation in Texas for a number of years, notably at the Aluminum Company of America reduction plant at Rockdale. Interest in Texas' low-grade coal deposits is due largely to pioneering research by the late Professor E. P. Schoch of The University of Texas College of Engineering. At one time, through his influence, lignite fueled The University's on-campus power station.

Inevitably, the new lignite projects have aroused the anxiety of environmentalists. They charge that lignite-fired plants cannot meet recently imposed clean-air standards. It is true that lignite is inherently a dirty fuel and produces more objectionable combustion products than natural gas. On the other hand, the technology of smoke scrubbing can

protect the atmosphere from an onslaught of lignite-derived pollutants—if that technology is adequately applied.

A second concern arises from the fact that lignite for the Big Brown plant is scooped from the earth through strip mining. Almost 15,000 tons a day of lignite will be gouged from a lignite seam twenty feet or more below the surface of the earth. The operating companies promise that strip mining in their Texas pits will not produce the blight that it has in West Virginia, Kentucky, and elsewhere. Piles of topsoil will be kept apart from the rest of the overburden removed in mining, and once a section of the lignite seam has been exhausted the land will be restored and replanted.

The High Cost of Clean Air

Edward E. David, Jr., science advisor to President Nixon, has pointed out that the concern with the environment is a factor operating to raise energy prices, already inflated by the expensive difficulty of finding new fuel reserves. Demands for low-sulfur fuels that do not insult the atmosphere are growing at a disproportionate rate. The most important of these fuels, of course, is natural gas, which is processed in the field to remove any sulfur it may contain.

Cleaning up or protecting the environment by recycling metal and wood products or by improved sewage processing is also costly in terms of energy requirements. Dr. David suggests, too, that utility companies' "regressive rate structure" may be open to attack on environmental grounds. Electric companies now give consumers a strong incentive to increase their electric consumption by offering much lower rates to residents of "all-electric" homes. Also, both residential and commercial electric customers are urged to equip themselves with air-conditioning equipment, outdoor lighting, and other appliances that draw a heavy load of power. In the future, consumers may not be encouraged so strongly to use so much energy. One electric utility company, not in Texas, recently suspended consumer advertising, with the statement that the money formerly spent to promote electric consumption would be dedicated to environmental improvement. The company later announced, though, that it planned to resume advertising shortly.

Certainly the consumer who uses less electricity is likely to use more energy in some other form, usually by burning more natural gas. Cooking, water heating, and space heating and cooling can be accomplished quite efficiently with either source of energy; so minimizing electric consumption may not do much to save the dwindling reserves of fuel or to protect the atmosphere from combustion products. Ideally a central electric generating facility should be able economically to process its waste products and protect the air much more effectively than a small-scale consumer reasonably could. Some doubt exists, however, that the electric industry is yet doing all it could.

As environmental protection becomes a popular cause, the electric- and gas-utility industries may well compete, to the common benefit, by taking measures to reduce pollution. Their competition in consumer markets is already intense. Gas utilities have touted heavily their outdoor gaslights, which serve some practical purpose and give a generous measure of nostalgic atmosphere. Even though the gas consumption of these lamps is very low on an hourly basis, it is constant and provides the kind of nonfluctuating demand that is the delight of utility managers. Recently the electric utilities have countered by offering automatic yard lights actuated by photoelectric cells, which come on only during the hours of darkness. These lights are available on a rental basis; the utility company installs and maintains them, adding a small monthly charge to the customer's electric bill.

Competition in Utility Markets

Electric utility men enjoy the fact that electric air-conditioning systems require no gas connections, while gas air conditioners depend on electric fans and thermostats and, in fact, add substantially to electric bills. Both types of air conditioning are unquestionably highly effective, and valid cost comparisons are difficult.

One worry of electric-utility executives is the fact that bargain-rate electric appliances, especially for heating and cooling, are being installed in many low-cost residential units. They fear that such appliances may not perform as well as they should and may give a bad name to electric appliances at large. In some Dallas suburbs, for example, 95 percent of the new residential units (excluding government-subsidized units) are "all-electric." It is certain that many of the new homes are not provided with electric equipment of really adequate quality.

In the long run the gas-utility industry is more vulnerable than the electric-power industry. Gas companies are equipped to sell only gas, whether natural gas or some kind of generated gas, and their investment in gas service is enormous. In Texas alone it takes over 100,000 miles of utility gas main to serve the industry's 2.8 million customers. By contrast, electric utilities can convert to any energy resource economically available. Though the conversion may be expensive, the utility has the opportunity to survive, whether it uses oil, coal, gas, or nuclear energy.

How Texas utilities, industries, and consumers will meet the challenges of transition in an energy-oriented world is still unclear. It is certain, however, that costs will increase and that priorities will change but that Texans in the seventies and beyond will still be generously provided with the power supplies to assure continuing improvement in their standards of living.

With cotton supplies at low levels this year, textile manufacturers and other foreign and domestic buyers are placing unprecedented emphasis on forward contracting of new-crop U.S. cotton. By the end of January about 31 percent of the anticipated 1972 U.S. cotton crop had already been sold. By May 1, 1971, about 20 percent of the total 1971 crop had been contracted.

ENVIRONMENTAL DATA FOR THE TEXAS COASTAL ZONE*

Peter T. Flawn**

The theme of this conference is environmental data for land and water planning and problem solving in the Texas coastal zone—or—what do you have to know to do a good job of management in the coastal zone. To get at the theme, I shall pose a few simple questions, or perhaps I should say basic questions, because not all of them are simple:

What are environmental data?

What can you do with them or why do you need them?

How do you know what you need?

Where can you get environmental data?

What do they cost?

Who is going to pay for them or who should pay for them?

For the coastal zone, environmental data are those quantities and qualities that describe the earth container, the fluid that circulates in it, the air that moves over it, and the plants and animals (including man) that live in it. In more scientific terms, environmental data are the parameters that measure the physical, chemical, and biological systems. A quantity is easily understood—so many parts-per-million of substance X. What that quantity means in terms of quality is less easy to ascertain. Organism A may thrive on it; organism B may tolerate it; organism C may die from it. I suppose the overall quality of an environmental system or subsystem might be defined in terms of a habitability index for various species.

Baseline is a common term. We are told we should measure or establish an environmental baseline on the coast. A baseline is an array of data that describe *now* (which rapidly becomes yesterday), and it introduces the dimension of time. How can you measure change if you do not have a starting point? In order to know whether or not a quantity is increasing or decreasing, or whether quality is getting better or worse, we must have a baseline to establish the quantity and quality now—the 1972 baseline for heavy metal ions, for example, would show the distribution of heavy metal ions in Texas coastal waters and sediments now. Baselines are imperfect things simply because of the difficulty of collecting and analyzing data. For example, to core and analyze all the bay-bottom muds on a regular grid pattern would be an enormously expensive job that under normal circumstances would take much more than a year. It would be more realistic to speak in terms of the 1970-1980 baseline for heavy metal ions. For some kinds of data, for example, the configuration of the land-water contact, we have maps and aerial photographs dating back through half a century that provide us with 1920, 1930, 1940, 1950, and 1960 baselines, and, with more or less accuracy, we can measure the substantial changes in the coastline that have occurred.

The concept of baseline, then, introduces the concept of change and points up the need for continued monitoring to measure the direction and magnitude of change.

For a part of the earth's surface, for a geographic entity, data have not only quantity, quality, and rates of change, but also location. The measuring and monitoring is done at a time and at a place. The most meaningful and useful way to present data that have spatial relationships to each other is on a map. Great masses of data reduced to digits and presented in a computer print-out are not really usable—the digitized data must be converted to a system that ties them to geography and displays them most effectively. This means a map or series of maps. For rapidly changing data, this means a series of maps produced at short intervals. For example, presentation of data on the rapidly changing atmosphere requires "weather maps" at hourly intervals and the baseline is yesterday. For slower-moving phenomena—bottom-sediment distribution for example—where data are more difficult and expensive to measure, and change is more difficult and expensive to monitor, maps at ten-year intervals would be more realistic. Rates of change in bottom-sediment distribution are, of course, very uneven, with major changes occurring during the big storms when enormous amounts of energy are focused on the coast, and overnight a mud bottom might have tons of sand piled on it.

When all of these physical, chemical, and biological data have been collected over a span of time through measuring and monitoring, and when they have been plotted on maps, the inquiring mind cannot help but play with them to see what they mean, to analyze them, to try to understand their relationships to each other, to try to see trends, and to try to predict the behavior of the system if this or that change should occur. The most sophisticated use of the data is to build a model that accurately represents or simulates the physical, chemical, and biological system, or, more realistically, a part of it. If the model is a good one, there are very practical benefits—a reduction of the need for continued measuring and monitoring, an ability to know in advance that a positive change in factors X, Y, and Z will result in a negative change in factor A, for example, the crab population.

Why do you need environmental data on the coastal zone? Why because our society lives, works, and plays there and plans to continue to live, work, and play there; the coastal zone feeds us and supplies us with energy and materials resources. The pressure that our society puts on the earth means that we must manage the earth if we are to insure a habitability index sufficient to maintain the health of our species and those on which we depend. The coastal zone is one of the most sensitive areas of the earth.

*Keynote address to the Texas Coastal Zone Conference, The University of Texas at Austin, April 4, 1972.

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Knowing what data you need is a real problem. The only thing worse than insufficient data is too much data. With insufficient data, you can make extrapolations, judgments, and estimates. With too much data you cannot complete the job in reasonable time. And since data cost money, you risk spending so much of your resources on data that there is not enough left to take appropriate action once the data are analyzed and the problem is clear. The answer to what and how much environmental data are needed is found in the problem. In what detail is it necessary to understand the circulation pattern in a particular bay? What will this understanding permit you to do that you cannot do now? You must ask the questions before you determine the kinds and density of data needed.

This is, of course, a very simple guide and it presupposes a perception of the problem and that you know all the questions to ask. Commonly, data collected for another purpose in past years are very useful for a current problem, and thus it is not fair bookkeeping to charge the full cost of generally useful data against one user. That would be like charging the full costs of a topographic map to road builders when it is useful to everyone who deals with land use.

The sources of environmental data are many and diverse, the producers of the data lack coordination, and the quality and utility vary greatly. There is duplication and overlap; there are gaps. Every agency or institution that is interested in coastal problems starts out with an "inventory of existing data." In my opinion, there is no catalog of this dynamic-data library that can help much. In general, these catalogs do not give information on the quality of the data. The effort could be better spent by going to the source of the data needed, the people actually generating the data, and asking them what data are available and how good they are. And you are well advised not to assume that institution X knows what institution Y is doing, or that agency A is informed about the work of agency B.

The cost? Many environmental data are free to the user or of very nominal cost. These are the data generated by public federal, state, and local agencies. And that is as it should be. The cost to the user lies in finding the data and putting them in a form that makes them usable. However, where there is a need for custom data designed and produced for special use, those data are expensive. If a corporation is planning a coastal project that will produce a significant environmental impact, the study required to understand the impact and design of the project to minimize undesirable effects might very well be a significant part of project costs. Rarely will the organization have a staff of experts to do the job inhouse. The common solution is the team of expert consultants. This solution is expensive, and there is the danger that proprietary data will be considered as lacking objectivity.

In previous remarks I have made, I have described the environmental problem in terms of three elements—(1) the scientific and engineering element, (2) the economic element, and (3) the political-sociological element. I regard the first element—the technological element—as clearly soluble and indeed near solution, particularly if we adopt rational environmental standards. It is a matter of gearing up to do the job. On the theme of this conference—environmental data—we can generate the data we need. We can measure, monitor, map, and model. Solution of the second element of the problem—the economic element—will result in considerable economic pain: a distribution of increased costs is always painful. In terms of data, I believe environmental data on the coastal zone should be generated with public funds. The rationale is clear—the generation of these data is in the public interest, the data are useful over time to a variety of public and private users, and use of public funds to do the job offers a way to broaden the cost base for maintaining environmental quality. With proper coordination between producers of data, it is more efficient (certainly less duplicative) for public agencies with regional responsibilities to generate the necessary information than for each private enterprise to do its own measuring, monitoring, mapping, and modeling, and attempt to pass on the cost. Of course, the key phrase is "with proper coordination." The third element of the environmental problem—the political and sociological element—is the most difficult of solution. Our political system must find a way to become a steward or manager of the land and water resources of the coastal zone. For this, we must, as a society, learn to use environmental data, and most important, find a way to act on what they tell us.

COTTON GINNED IN LEADING STATES AND UNITED STATES 1968-1971*

State	1971	1970	1969	1968
Texas	682,580	670,814	867,365	864,535
Arkansas	450,075	240,332	604,575	356,699
Mississippi	386,423	369,988	708,033	476,357
Alabama	209,405	233,032	216,335	209,306
Missouri	185,914	69,829	183,942	89,278
Tennessee	164,876	108,737	230,922	157,616
South Carolina	118,521	147,322	78,892	193,670
Louisiana	105,232	155,227	279,532	174,691
Georgia	102,269	178,760	127,081	215,462
All other states	199,973	435,284	512,011	508,795
United States	2,605,268	2,609,325	3,808,688	3,246,409

* This table shows the number of bales (running bales; linters not included) of cotton, from the crop of 1971, ginned through October 18, with comparable figures for the corresponding periods in 1970, 1969, and 1968.

Source: U.S. Department of Commerce; Social and Economic Statistics Administration; Bureau of the Census.

TEXAS BROILERS

Broilers brought Texas producers $87.2 million in 1971, according to the Texas Crop and Livestock Reporting Service. Higher prices, failing to offset the 8-percent decline in production, resulted in a reduction of $4.3 million from 1970 gross income.

Among the twenty-two major broiler-producing states, Texas ranked seventh in number produced and seventh in gross income from broilers.

LOCAL BUSINESS CONDITIONS

Statistical data compiled by Mildred Anderson, statistical associate, *Constance Cooledge*, statistical assistant, *and Kay Davis*, statistical technician.

The indicators of local business conditions in Texas which are included in this section are statistics on bank debits, urban building permits, and employment. The data are reported by metropolitan areas in the first table below and by municipalities within counties in the second table.

Standard metropolitan statistical areas (SMSA's) in Texas are defined by county lines; in the first table the counties included in the area are listed under each SMSA. Since the Longview-Kilgore-Gladewater area is functioning as a significant metropolitan complex in its region, although not officially designated as an SMSA by the Bureau of the Census, data for this area have been included in the table for SMSA's. In both tables the populations shown for the SMSA's and for the counties are the population counts of the 1970 Census. In the second table the population values for individual municipalities are also counts of the 1970 Census, unless otherwise indicated. Population estimates made for municipalities in noncensus years are commonly based on utility connections, and these estimates are subject to the errors inherent in a process dependent on base ratios derived in 1960.

The values of urban building permits have been collected from participating municipal authorities by the Bureau of Business Research in cooperation with the Bureau of the Census of the U.S. Department of Commerce. Inasmuch as building permits are not required by county authorities, it must be emphasized that the reported permits reflect construction intentions only in incorporated places. Permits are reported for residential and nonresidential building only, and do not include public-works projects such as roadways, waterways, or reservoirs; nor do they include construction let under federal contracts.

The values of bank debits for all SMSA's and for most central cities of the SMSA's have been collected by the Federal Reserve Bank of Dallas. Bank debits for the remaining municipalities have been collected from cooperating banks by the Bureau of Business Research.

Employment estimates are compiled by the Texas Employment Commission in cooperation with the Bureau of Labor Statistics of the U.S. Department of Labor.

Footnote symbols are defined on pp. 129 and 136.

INDICATORS OF LOCAL BUSINESS CONDITIONS FOR STANDARD METROPOLITAN STATISTICAL AREAS
April 1972

Reported area and indicator	Apr 1972	Percent change from Mar 1972	Percent change from Apr 1971
ABILENE SMSA			
Jones and Taylor Counties; population 113,959			
Urban building permits (dollars)	2,533,027	− 16	288
Bank debits, seas. adj. ($1,000)	210,928	− 4	8
Nonfarm employment	39,550	**	4
Manufacturing employment	5,570	**	8
Unemployed (percent)	3.0	− 6	− 14
AMARILLO SMSA			
Potter and Randall Counties; population 144,396			
Urban building permits (dollars)	2,060,944	− 31	1
Bank debits, seas. adj. ($1,000)	604,275	5	15
Nonfarm employment	61,900	**	− 3
Manufacturing employment	7,900	− 2	− 7
Unemployed (percent)	4.4	5	26
AUSTIN SMSA			
Travis County; population 295,516			
Urban building permits (dollars)	19,049,274	− 22	44
Bank debits, seas. adj. ($1,000)	1,043,036	5	23
Nonfarm employment	144,700	**	4
Manufacturing employment	13,060	− 1	3
Unemployed (percent)	1.9	− 5	6
BEAUMONT-PORT ARTHUR-ORANGE SMSA			
Jefferson and Orange Counties; population 315,943			
Urban building permits (dollars)	5,892,868	51	137
Bank debits, seas. adj. ($1,000)	550,290	− 3	− 1
Nonfarm employment	121,700	**	2
Manufacturing employment	37,500	1	1
Unemployed (percent)	5.2	− 2	− 4
BROWNSVILLE-HARLINGEN-SAN BENITO SMSA			
Cameron County; population 140,368			
Urban building permits (dollars)	1,091,140	− 66	− 11
Bank debits, seas. adj. ($1,000)	203,765	− 1	11
Nonfarm employment	42,700	**	7
Manufacturing employment	6,970	− 2	13
Unemployed (percent)	7.4	− 3	− 5

Reported area and indicator	Apr 1972	Percent change from Mar 1972	Percent change from Apr 1971
BRYAN-COLLEGE STATION SMSA			
Brazos County; population 57,978			
Urban building permits (dollars)	...	...	...
Bank debits, seas. adj. ($1,000)	103,123	− 3	33
(Monthly employment reports are not available for the Bryan-College Station SMSA).			
CORPUS CHRISTI SMSA			
Nueces and San Patricio Counties; population 284,832			
Urban building permits (dollars)	5,216,556	− 61	− 26
Bank debits, seas. adj. ($1,000)	602,021	− 2	17
Nonfarm employment	100,100	**	**
Manufacturing employment	11,060	**	− 4
Unemployed (percent)	4.9	− 2	20
DALLAS SMSA			
Collin, Dallas, Denton, Ellis, Kaufman, and Rockwall Counties; population 1,555,950			
Urban building permits (dollars)	52,383,378	− 12	12
Bank debits, seas. adj. ($1,000)	12,309,917	**	10
Nonfarm employment	734,500	**	3
Manufacturing employment	148,625	**	1
Unemployed (percent)	2.6	**	− 24
EL PASO SMSA			
El Paso County; population 359,291			
Urban building permits (dollars)	8,466,444	12	**
Bank debits, seas. adj. ($1,000)	769,320	− 1	14
Nonfarm employment	125,900	**	3
Manufacturing employment	27,450	**	6
Unemployed (percent)	4.7	12	9
FORT WORTH SMSA			
Johnson and Tarrant Counties; population 762,086			
Urban building permits (dollars)	16,074,964	− 21	− 32
Bank debits, seas. adj. ($1,000)	2,350,734	− 1	8
Nonfarm employment	291,900	1	− 1
Manufacturing employment	71,000	1	− 7
Unemployed (percent)	4.5	5	− 8

Reported area and indicator	Apr 1972	Percent change from Mar 1972	Percent change from Apr 1971
GALVESTON-TEXAS CITY SMSA			
Galveston County; population 169,812			
Urban building permits (dollars)	3,326,230	121	202
Bank debits, seas. adj. ($1,000)	237,251	**	3
Nonfarm employment	62,100	**	2
Manufacturing employment	11,050	**	− 2
Unemployed (percent)	6.7	2	− 3
HOUSTON SMSA			
Brazoria, Fort Bend, Harris, Liberty, and Montgomery Counties; population 1,985,031			
Urban building permits (dollars)	56,582,757	− 44	− 27
Bank debits, seas. adj. ($1,000)	11,510,965	1	22
Nonfarm employment	902,000	**	3
Manufacturing employment	149,800	**	2
Unemployed (percent)	2.9	− 3	7
KILLEEN-TEMPLE SMSA			
Bell and Coryell Counties; population 159,794			
Urban building permits (dollars)	5,108,860	93	83
Bank debits ($1,000)	127,276	− 7	− 1
(Monthly employment reports are not available for the Killeen-Temple SMSA.)			
LAREDO SMSA			
Webb County; population 72,859			
Urban building permits (dollars)	731,720	39	11
Bank debits, seas. adj. ($1,000)	88,207	− 5	5
Nonfarm employment	25,850	2	1
Manufacturing employment	1,540	1	7
Unemployed (percent)	11.4	− 5	10
LONGVIEW-KILGORE-GLADEWATER METROPOLITAN AREA			
Gregg County; population 75,929			
Urban building permits (dollars)	1,497,672	− 35	13
Bank debits ($1,000)	130,136	− 12	− 2
Nonfarm employment	35,750	1	**
Manufacturing employment	10,010	2	− 2
Unemployed (percent)	5.3	− 7	29
(Building permits and bank debits are included for those portions of Kilgore and Gladewater in Rusk County and Upshur County.)			
LUBBOCK SMSA			
Lubbock County; population 179,295			
Urban building permits (dollars)	3,538,150	− 29	− 43
Bank debits, seas. adj. ($1,000)	479,835	1	10
Nonfarm employment	69,600	**	3
Manufacturing employment	7,670	− 2	1
Unemployed (percent)	2.4	**	− 17
McALLEN-PHARR-EDINBURG SMSA			
Hidalgo County; population 181,535			
Urban building permits (dollars)	2,312,650	− 36	126
Bank debits, seas. adj. ($1,000)	214,641	3	30
Nonfarm employment	44,200	− 1	− 8
Manufacturing employment	4,270	**	**
Unemployed (percent)	7.0	− 22	25
MIDLAND SMSA			
Midland County; population 65,433			
Urban building permits (dollars)	660,699	− 88	− 82
Bank debits, seas. adj. ($1,000)	174,545	− 6	1
Nonfarm employment	62,100	**	**
Manufacturing employment	5,330	1	3
Unemployed (percent)	3.6	3	− 8
(Employment data are reported for the combined Midland and Odessa SMSA'S since employment figures for Midland and Ector Counties, composing one labor-market area, are recorded in combined form by the Texas Employment Commission.)			
ODESSA SMSA			
Ector County; population 91,805			
Urban building permits (dollars)	11,738,580	1,730	989
Bank debits, seas. adj. ($1,000)	161,429	1	18
Nonfarm employment	62,100	**	**
Manufacturing employment	5,330	1	3
Unemployed (percent)	3.6	3	− 8
(Employment data are reported for the combined Midland and Odessa SMSA's since employment figures for Midland and Ector Counties, composing one labor-market area, are recorded in combined form by the Texas Employment Commission.)			
SAN ANGELO SMSA			
Tom Green County; population 71,047			
Urban building permits (dollars)	330,227	− 68	− 70
Bank debits, seas. adj. ($1,000)	140,075	2	9
Nonfarm employment	23,950	**	**
Manufacturing employment	4,230	1	**
Unemployed (percent)	3.4	**	− 6
SAN ANTONIO SMSA			
Bexar and Guadalupe Counties; population 864,014			
Urban building permits (dollars)	41,154,704	139	155
Bank debits, seas. adj. ($1,000)	1,852,939	1	7
Nonfarm employment	306,500	**	2
Manufacturing employment	35,850	**	2
Unemployed (percent)	3.9	**	− 7
SHERMAN-DENISON SMSA			
Grayson County; population 83,225			
Urban building permits (dollars)	2,123,380	229	53
Bank debits, seas. adj. ($1,000)	106,416	− 13	8
(Monthly employment reports are not available for the Sherman-Denison SMSA.)			
TEXARKANA SMSA			
Bowie County, Texas, and Miller County, Arkansas; population 101,198			
Urban building permits (dollars)	934,926	94	− 63
Bank debits, seas. adj. ($1,000)	139,180	− 6	4
Nonfarm employment	39,950	**	1
Manufacturing employment	8,840	**	− 2
Unemployed (percent)	5.8	2	− 12
(Since the Texarkana SMSA includes Bowie County in Texas and Miller County in Arkansas, all data, including population, refer to the two-county region.)			
TYLER SMSA			
Smith County; population 97,096			
Urban building permits (dollars)	1,265,815	− 14	55
Bank debits, seas. adj. ($1,000)	217,553	− 2	9
Nonfarm employment	40,650	1	4
Manufacturing employment	12,860	2	8
Unemployed (percent)	3.6	6	13
WACO SMSA			
McLennan County; population 147,553			
Urban building permits (dollars)	3,559,850	13	− 39
Bank debits, seas. adj. ($1,000)	289,209	− 10	2
Nonfarm employment	59,300	1	2
Manufacturing employment	12,660	1	10
Unemployed (percent)	4.5	7	− 4
WICHITA FALLS SMSA			
Archer and Wichita Counties; population 127,621			
Urban building permits (dollars)	964,338	− 38	− 53
Bank debits, seas. adj. ($1,000)	236,724	− 4	7
Nonfarm employment	43,150	**	1
Manufacturing employment	5,160	**	7
Unemployed (percent)	2.8	− 7	− 13

** Absolute change is less than one half of 1 percent.
... No data, or inadequate basis for reporting.
Urban building permit data is preliminary and subject to revision.

INDICATORS OF LOCAL BUSINESS CONDITIONS FOR INDIVIDUAL MUNICIPALITIES
APRIL 1972

COUNTY City	Population	Urban building permits			Bank debits		
		Apr 1972 (dollars)	Percent change from Mar 1972	Percent change from Apr 1971	Apr 1972 (thousands of dollars)	Percent change from Mar 1972	Percent change from Apr 1971
ANDERSON	27,789						
Palestine	14,525	86,175	– 35	40	21,585	– 12	– 10
ANDREWS	10,372						
Andrews	8,625	46,963	18	152	8,992	– 1	**
ANGLINA	49,349						
Lufkin	23,049	349,226	– 76	– 6	...	...	...
ARANSAS	8,902						
Aransas Pass	5,813	131,470	42	...	10,285	– 14	3
ATASCOSA	18,696						
Pleasanton	5,407	...	...	...	7,049	– 3	6
AUSTIN	13,831						
Bellville	2,371	94,700	– 31	45	8,234	– 4	13
BAILEY	8,487						
Muleshoe	4,525	...	...	...	14,619	– 11	5
BASTROP	17,297						
Smithville	2,959	19,550	– 62	203	3,252	5	11
BEE	22,737						
Beeville	13,506	122,481	50	40	22,188	– 5	6
BELL	124,483						
(In Killeen-Temple SMSA)							
Bartlett	1,622	...	...	...	1,748	5	22
Belton	8,696	1,040,605	500	...	...	...	...
Harker Heights	4,216	194,812	6	79	...	...	...
Killeen	35,507	2,163,432	167	351	36,072	– 8	– 18
Temple	33,431	1,127,754	7	– 33	72,753	– 8	5
BEXAR	830,460						
(In San Antonio SMSA)							
San Antonio	654,153	40,523,866	151	164	1,725,799	– 7	– 1
BOWIE	67,813						
(In Texarkana SMSA)							
Texarkana	52,179	904,926	88	– 63	121,483	– 5	5
BRAZORIA	108,312						
(In Houston SMSA)							
Angleton	9,770	272,940	– 45	25	17,852	– 9	7
Clute	6,023	39,550	58	– 89	5,978	– 14	5
Freeport	11,997	162,530	– 41	71	28,874	– 16	4
Pearland	6,444	825,300	17	60	9,348	– 14	11
BRAZOS	57,978						
(Constitutes Bryan-College Station SMSA)							
Bryan	33,719	...	...	...	87,579	– 4	10
College Station	17,676	371,070	63	–34	12,004	– 17	13
BREWSTER	7,780						
Alpine	5,971	11,600	– 96	– 59	5,852	– 3	8
BROWN	25,877						
Brownwood	17,368	163,275	– 43	– 54	...	...	...
BURLESON	9,999						
Caldwell	2,308	...	...	...	4,281	– 7	– 3
BURNET	11,420						
Marble Falls	2,209	...	...	...	9,830	33	33
CALDWELL	21,178						
Lockhart	6,489	1,308,529	...	...	9,856	– 1	14
CAMERON	140,368						
(Constitutes Brownsville-Harlingen-San Benito SMSA)							
Brownsville	52,522	556,900	– 66	– 41	77,517	**	14
Harlingen	33,503	401,985	– 71	94	83,142	– 10	10
La Feria	2,642	4,300	– 98	34	2,977	– 5	7
Los Fresnos	1,297	...	...	...	1,792	– 14	– 23
Port Isabel	3,067	...	...	...	4,338	– 5	34
San Benito	15,176	127,780	144	298	8,271	– 16	2

COUNTY City	Population	Urban building permits Apr 1972 (dollars)	Percent change from Mar 1972	Percent change from Apr 1971	Bank debits Apr 1972 (thousands of dollars)	Percent change from Mar 1972	Percent change from Apr 1971
CASTRO	10,394						
Dimmitt	4,327	...	...	...	23,620	– 15	8
CHEROKEE	32,008						
Jacksonville	9,734	66,100	– 27	104	24,290	– 3	– 10
COLEMAN	10,288						
Coleman	5,608	...	...	...	18,510	– 10	6
COLLIN	66,920						
(In Dallas SMSA)							
McKinney	15,193	192,368	– 21	– 56	16,869	17	5
Plano	17,872	2,836,610	21	227	25,993	2	34
COLORADO	17,638						
Eagle Lake	3,587	...	...	...	5,936	– 1	29
COMAL	24,165						
New Braunfels	17,859	394,800	– 80	5	26,789	– 2	4
COOKE	23,471						
Gainesville	13,830	2,534,000	...	...	21,300	– 10	2
Muenster	1,411	6,150	– 68	2	3,401	– 14	– 6
CORYELL	35,311						
(In Killeen-Temple SMSA)							
Copperas Cove	10,818	582,257	39	31	5,688	6	29
Gatesville	4,683	...	...	...	11,015	4	14
CRANE	4,172						
Crane	3,427	47,000	...	87	2,693	– 3	12
DALLAS	1,327,321						
(In Dallas SMSA)							
Carrollton	13,855	4,999,116	5	103	27,201	33	74
Dallas	844,401	19,861,412	– 5	**	11,107,066	– 7	3
Farmers Branch	27,492	2,643,465	67	41	27,404	4	7
Garland	81,437	2,286,682	– 67	...	71,595	– 4	– 4
Grand Prairie	50,904	4,350,298	– 58	44	40,334	3	11
Irving	97,260	2,745,475	95	– 39	90,880	– 11	3
Lancaster	10,522	2,301,700	486	...	8,970	– 11	13
Mesquite	55,131	1,239,989	182	– 24	32,202	– 8	26
Richardson	48,582	...	...	...	77,640	– 21	41
Seagoville	4,390	143,413	– 65	– 56	8,226	3	– 42
DAWSON	16,604						
Lamesa	11,559	94,161	685	17	22,337	– 20	4
DEAF SMITH	18,999						
Hereford	13,414	319,000	34	38	...	...	...
DENTON	75,633						
(In Dallas SMSA)							
Denton	39,874	1,998,973	– 6	– 76	75,178	3	10
Justin	741	20,000	...	300	1,253	– 18	– 11
Lewisville	9,264	1,319,380	– 37	– 20	25,188	– 2	68
Pilot Point	1,663	13,700	...	– 79	3,309	**	– 6
DE WITT	18,660						
Yoakum	5,755	132,140	53	13	13,897	– 1	28
EASTLAND	18,092						
Cisco	4,160	...	...	...	4,643	– 14	– 4
ECTOR	91,805						
(Constitutes Odessa SMSA)							
Odessa	78,380	11,738,580	...	989	155,834	5	10
ELLIS	46,638						
(In Dallas SMSA)							
Ennis	11,046	...	...	...	13,910	– 2	33
Midlothian	2,322	157,850	246	5	2,980	– 2	24
Waxahachie	13,452	175,410	105	176	22,451	– 12	5
EL PASO	359,291						
(Constitutes El Paso SMSA)							
El Paso	322,261	8,466,444	12	**	691,169	– 21	4
ERATH	18,191						
Stephenville	9,277	107,750	– 13	– 12	15,403	– 5	6

COUNTY City	Population	Urban building permits Apr 1972 (dollars)	Percent change from Mar 1972	Percent change from Apr 1971	Bank debits Apr 1972 (thousands of dollars)	Percent change from Mar 1972	Percent change from Apr 1971
FANNIN	22,705						
Bonham	7,698	48,300	– 65	– 21	13,209	– 21	– 2
FAYETTE	17,650						
Schulenburg	2,294	1,300	– 97	– 97	...	...	...
FORT BEND	52,314						
(In Houston SMSA)							
Richmond	5,777	112,400	– 63	17	12,659	5	38
Rosenberg	12,098	192,300	8	– 32	10,196	7	9
GAINES	11,593						
Seagraves	2,440	2,500	– 91	– 78	2,824	– 19	– 9
Seminole	5,007	25,950	601	20	8,543	– 22	28
GALVESTON	169,812						
(Constitutes Galveston-Texas City SMSA)							
Dickinson	10,776	...	...	...	15,242	– 22	**
Galveston	61,809	2,433,459	378	295	131,013	– 7	– 15
La Marque	16,131	93,546	– 48	**	17,131	– 12	– 11
Texas City	38,908	799,225	– 2	103	34,454	– 11	– 9
GILLESPIE	10,553						
Fredericksburg	5,326	182,150	117	31	20,592	3	21
GONZALES	16,375						
Nixon	1,925	4,784	– 88	498	...	...	...
GRAY	26,949						
Pampa	21,726	45,500	– 5	– 5	39,033	– 8	5
GRAYSON	83,225						
(Constitutes Sherman-Denison SMSA)							
Denison	24,923	455,150	242	– 51	29,720	– 13	– 1
Sherman	29,061	1,668,230	225	262	63,910	5	5
GREGG	75,929						
(Constitutes Longview-Kilgore-Gladewater Metropolitan Area)							
Gladewater	5,574	94,772	– 53	17	6,778	– 4	– 5
Kilgore	9,495	236,400	10	434	22,391	– 2	12
Longview	45,547	1,166,500	– 39	– 3	100,967	– 15	– 4
GUADALUPE	33,554						
(In San Antonio SMSA)							
Schertz	4,061	290,450	– 76	...	1,620	– 26	41
Seguin	15,934	182,800	55	208	25,849	– 10	8
HALE	34,137						
Hale Center	1,964	2,000	– 43	– 85	...	...	...
Plainview	19,096	210,800	– 73	...	57,397	– 19	7
HARDEMAN	6,795						
Quanah	3,948	26,000	– 91	– 97	6,084	– 9	– 6
HARRIS	1,741,912						
(In Houston SMSA)							
Baytown	43,980	474,709	– 50	– 92	75,445	– 8	5
Bellaire	19,009	146,034	25	– 71	74,803	– 8	12
Deer Park	12,773	534,622	– 62	– 24	13,932	– 23	– 12
Houston	1,232,802	49,203,743	– 43	– 18	10,202,574	– 7	15
Humble	3,278	190,000	– 38	– 49	13,014	– 10	17
La Porte	7,149	285,100	232	200	4,964	– 1	– 7
Pasadena	89,277	906,344	– 88	– 78	135,979	– 12	6
Tomball	2,734	...	...	...	22,345	5	30
HARRISON	44,841						
Hallsville	1,038	...	...	...	1,607	– 16	20
Marshall	22,937	115,485	– 34	...	29,432	– 12	– 8
HASKELL	8,512						
Haskell	3,655	0	...	...	5,169	– 24	13
HAYS	27,642						
San Marcos	18,860	251,959	367	– 46	16,259	1	– 6
HENDERSON	26,466						
Athens	9,582	380,000	**	36	18,960	– 1	13

COUNTY City	Population	Urban building permits Apr 1972 (dollars)	Percent change from Mar 1972	Percent change from Apr 1971	Bank debits Apr 1972 (thousands of dollars)	Percent change from Mar 1972	Percent change from Apr 1971
HIDALGO (Constitutes McAllen-Pharr-Edinburg SMSA)	181,535						
Alamo	4,291	6,200	– 80	...	5,605	3	68
Donna	7,365	109,100	– 29	...	5,389	– 22	– 14
Edinburg	17,163	265,864	– 67	88	35,379	– 15	17
Elsa	4,400	0	...	...	6,629	1	27
McAllen	37,636	1,270,595	– 44	141	83,068	3	21
Mercedes	9,355	216,500	647	...	9,114	– 14	9
Mission	13,043	157,050	47	47	25,306	– 5	23
Pharr	15,829	111,746	– 5	93	8,248	– 1	12
San Juan	5,070	27,035	– 8	...	4,180	– 4	4
Weslaco	15,313	134,840	11	– 25	21,206	– 18	6
HOCKLEY	20,396						
Levelland	11,445	68,150	– 83	– 57	23,430	– 23	– 2
HOOD	6,368						
Granbury	2,473	...	...	...	3,865	4	41
HOPKINS	20,710						
Sulphur Springs	10,642	206,775	– 30	– 28	33,068	– 7	14
HOWARD	37,796						
Big Spring	28,735	41,955	– 41	24	63,284	– 7	1
HUNT	47,948						
Greenville	22,043	169,050	– 58	72	...	...	...
HUTCHINSON	24,443						
Borger	14,195	70,850	– 95	– 7	...	...	...
JACKSON	12,975						
Edna	5,332	7,575	– 71	– 69	9,207	1	– 4
JASPER	24,692						
Jasper	6,251	229,300	832	...	18,586	– 3	8
Kirbyville	1,869	...	...	...	3,149	– 9	– 4
JEFFERSON (In Beaumont-Port Arthur-Orange SMSA)	244,773						
Beaumont	115,919	4,444,864	73	256	340,405	– 9	– 3
Groves	18,067	181,966	– 10	31	20,132	– 11	14
Nederland	16,810	175,590	...	77	12,700	– 1	9
Port Arthur	57,371	461,087	7	36	88,459	– 8	– 23
Port Neches	10,894	376,521	– 6	30	18,239	– 11	1
JIM WELLS	33,032						
Alice	20,121	229,799	– 61	– 59	45,106	– 17	7
JOHNSON (In Fort Worth SMSA)	45,769						
Cleburne	16,015	295,616	– 33	22	21,555	1	– 24
KARNES	13,462						
Karnes City	2,926	13,700	– 89	– 48	4,600	– 7	– 3
KAUFMAN (In Dallas SMSA)	32,392						
Terrell	14,182	200,336	– 25	97	...	...	...
KIMBLE	3,904						
Junction	2,654	...	...	...	3,231	8	– 6
KLEBERG	33,166						
Kingsville	28,711	1,065,334	37	142	26,823	– 14	1
LAMAR	36,062						
Paris	23,441	211,619	– 8	– 20	...	...	...
LAMB	17,770						
Littlefield	6,738	...	...	...	10,155	– 25	2
LAMPASAS	9,323						
Lampasas	5,922	128,000	– 3	...	13,288	6	7
LAVACA	17,903						
Hallettsville	2,712	38,940	74	2	5,390	– 1	9
Yoakum	5,755	132,140	53	13	13,897	– 1	28

COUNTY City	Population	Urban building permits Apr 1972 (dollars)	Percent change from Mar 1972	Percent change from Apr 1971	Bank debits Apr 1972 (thousands of dollars)	Percent change from Mar 1972	Percent change from Apr 1971
LEE	8,048						
Giddings	2,783	52,851	...	216	8,679	15	23
LIBERTY	33,014						
(In Houston SMSA)							
Dayton	3,804	117,700	68	17	7,986	– 17	16
Liberty	5,591	238,515	360	768	15,818	– 13	3
LIMESTONE	18,100						
Mexia	5,943	36,150	27	519	10,316	– 5	– 7
LLANO	6,979						
Kingsland	1,262	...	...	...	9,387	– 18	32
Llano	2,608	40,000	5	...	7,036	18	12
LUBBOCK	179,295						
(Constitutes Lubbock SMSA)							
Lubbock	149,101	3,518,100	– 28	– 43	412,801	– 8	6
Slaton	6,583	20,050	– 20	– 64	6,256	– 24	– 2
LYNN	9,107						
Tahoka	2,956	29,000	...	– 80	5,345	– 22	16
McCULLOCH	8,571						
Brady	5,557	71,250	5	– 12	10,639	1	**
McLENNAN	147,553						
(Constitutes Waco SMSA)							
McGregor	4,365	28,291	11	89	6,781	– 1	31
Waco	95,326	3,465,509	17	– 40	279,705	– 5	3
MATAGORDA	27,913						
Bay City	11,733	43,150	– 21	– 48	27,108	6	23
MAVERICK	18,093						
Eagle Pass	15,364	212,910	291	74	21,801	22	50
MEDINA	20,249						
Castroville	1,893	23,800	13	– 60	1,571	– 9	3
Hondo	5,487	30,830	– 78	– 54	5,232	– 4	– 7
MIDLAND	65,433						
(Constitutes Midland SMSA)							
Midland	59,463	660,699	– 88	– 82	170,709	– 9	– 6
MILAM	20,028						
Cameron	5,546	289,525	...	...	8,812	– 4	– 1
Rockdale	4,655	57,850	...	31	7,804	– 18	– 18
MILLS	4,212						
Goldthwaite	1,693	...	...	...	8,051	24	7
MITCHELL	9,073						
Colorado City	5,227	...	...	...	6,069	– 24	– 1
MONTGOMERY	49,479						
(In Houston SMSA)							
Conroe	11,969	530,930	– 43	– 16	74,792	– 7	68
MOORE	14,060						
Dumas	9,771	55,550	– 72	– 42	...	...	...
NACOGDOCHES	36,362						
Nacogdoches	22,544	597,176	– 87	35	40,686	– 5	12
NAVARRO	31,150						
Corsicana	19,972	27,064	– 91	...	33,730	– 8	– 14
NOLAN	16,220						
Sweetwater	12,020	30,162	– 17	65	22,457	– 19	1
NUECES	237,544						
(In Corpus Christi SMSA)							
Bishop	3,466	...	...	...	2,490	– 1	4
Corpus Christi	204,525	4,523,189	– 65	– 31	492,877	– 7	8
Port Aransas	1,218	...	...	...	1,132	**	1
Robstown	11,217	127,109	– 17	– 15	19,046	– 7	6

COUNTY City	Population	Urban building permits			Bank debits		
		Apr 1972 (dollars)	Percent change from Mar 1972	Percent change from Apr 1971	Apr 1972 (thousands of dollars)	Percent change from Mar 1972	Percent change from Apr 1971
ORANGE	71,170						
(In Beaumont-Port Arthur-Orange SMSA)							
Orange	24,457	250,240	59	– 45	53,133	– 15	– 4
PALO PINTO	28,962						
Mineral Wells	18,411	20,855	– 56	– 45	28,435	– 5	– 11
PANOLA	15,894						
Carthage	5,392	33,700	– 56	– 91	6,475	– 1	15
PARKER	33,888						
Weatherford	11,750	821,600	515	721	27,202	– 14	8
PARMER	10,509						
Friona	3,111	9,600	– 76	– 49	25,365	– 18	4
PECOS	13,748						
Fort Stockton	8,283	68,200	– 41	356	12,501	2	...
POTTER	90,511						
(In Amarillo SMSA)							
Amarillo	127,010	1,859,565	– 37	– 1	552,976	– 4	8
RANDALL	53,885						
(In Amarillo SMSA)							
Amarillo (See Potter)							
Canyon	8,333	201,379	704	34	10,715	– 15	1
REEVES	16,526						
Pecos	12,682	89,200	...	...	24,185	– 14	– 3
REFUGIO	9,494						
Refugio	4,340	12,000	– 85	...	5,320	6	**
RUSK	34,102						
Henderson	10,187	119,883	– 26	47	24,096	– 1	17
Kilgore	9,495	236,400	10	434	22,391	– 2	12
SAN PATRICIO	47,288						
(In Corpus Christi SMSA)							
Aransas Pass	5,813	131,470	42	...	10,285	– 14	3
Sinton	5,563	104,731	88	27	9,965	– 12	6
SAN SABA	5,540						
San Saba	2,555	13,000	294	– 22	9,221	11	15
SCURRY	15,760						
Snyder	11,171	565,600	160	188	18,772	– 9	– 5
SHACKELFORD	3,323						
Albany	1,978	0	...	...	3,485	– 5	– 4
SHERMAN	3,657						
Stratford	2,139	0	...	...	13,676	– 8	20
SMITH	97,096						
(Constitutes Tyler SMSA)							
Tyler	57,770	1,214,815	– 17	54	196,137	– 6	2
STEPHENS	8,414						
Breckenridge	5,944	40,000	45	105	...	...	...
SUTTON	3,175						
Sonora	2,149	11,145	– 44	...	3,598	– 6	– 9
TARRANT	716,317						
(In Fort Worth SMSA)							
Arlington	90,643	6,565,361	– 23	– 46	118,375	– 10	7
Euless	19,316	263,446	8	**	...	...	...
Fort Worth	393,476	4,336,080	– 35	– 28	1,952,579	– 8	1
Grapevine	7,023	58,919	– 71	– 60	10,277	65	10
North Richland Hills	16,514	688,110	100	20	22,028	**	17
White Settlement	13,449	186,230	28	...	7,101	– 7	14
TAYLOR	97,853						
(In Abilene SMSA)							
Abilene	89,653	2,531,327	– 8	289	176,523	– 7	4
TERRY	14,118						
Brownfield	9,647	257,545	156	54	27,374	– 14	8

COUNTY City	Population	Urban building permits Apr 1972 (dollars)	Percent change from Mar 1972	Percent change from Apr 1971	Bank debits Apr 1972 (thousands of dollars)	Percent change from Mar 1972	Percent change from Apr 1971
TITUS	16,702						
Mount Pleasant	8,877	208,346	17	55	26,760	– 3	17
TOM GREEN	71,047						
(Constitutes San Angelo SMSA)							
San Angelo	63,884	330,227	– 68	– 70	133,231	– 5	6
TRAVIS	295,516						
(Constitutes Austin SMSA)							
Austin	251,808	18,762,274	– 23	41	1,012,723	2	19
UPSHUR	20,976						
Gladewater	5,574	94,772	– 53	17	6,778	– 4	– 5
UPTON	4,697						
McCamey	2,647	...	...	...	2,289	– 1	13
UVALDE	17,348						
Uvalde	10,764	139,076	– 45	– 25	26,281	**	12
VAL VERDE	27,471						
Del Rio	21,330	...	...	...	24,644	– 3	– 2
VICTORIA	53,766						
Victoria	41,349	510,050	– 41	– 19	119,316	1	3
WALKER	27,680						
Huntsville	17,610	590,860	79	245	25,658	– 24	11
WARD	13,019						
Monahans	8,333	61,972	340	...	13,115	– 8	– 3
WASHINGTON	18,842						
Brenham	8,922	183,547	48	– 38	30,856	12	27
WEBB	72,859						
(Constitutes Laredo SMSA)							
Laredo	69,024	731,720	39	11	87,564	– 12	– 3
WHARTON	36,729						
El Campo	8,563	92,485	– 16	348	21,221	– 7	10
WICHITA	121,862						
(In Wichita Falls SMSA)							
Burkburnett	9,230	72,681	– 8	30	9,791	– 11	6
Iowa Park	5,796	150	...	...	4,447	– 14	6
Wichita Falls	97,564	891,507	– 36	– 53	206,975	– 6	3
WILBARGER	15,355						
Vernon	11,454	1,854,220	638	...	32,133	– 1	23
WILLACY	15,570						
Raymondville	7,987	103,800	– 57	...	11,758	– 14	– 11
WILLIAMSON	37,305						
Bartlett	1,622	...	...	...	1,748	5	22
Georgetown	6,395	439,900	11	51	14,055	11	29
Taylor	9,616	54,875	– 84	– 67	13,867	– 10	– 1
WINKLER	9,640						
Kermit	7,884	0	...	...	...	...	...
WISE	19,687						
Decatur	3,240	41,500	– 38	232	6,572	**	– 8
YOUNG	15,400						
Graham	7,477	281,650	66	424	16,266	1	1
Olney	3,624	69,950	117	19	8,500	12	23
ZAVALA	11,370						
Crystal City	8,104	61,178	18	– 37	8,470	16	19

** Absolute change is less than one half of 1 percent.
... No data, or inadequate basis for reporting.

BAROMETERS OF TEXAS BUSINESS

(All figures are for Texas unless otherwise indicated.)

All indexes are based on the average months for 1967=100 except where other specification is made; all except annual indexes are adjusted for seasonal variation unless otherwise noted. Employment estimates are compiled by the Texas Employment Commission in cooperation with the Bureau of Labor Statistics of the U.S. Department of Labor. The symbols used below impose qualifications as indicated here: p–preliminary data subject to revision; r–revised data; *–dollar totals for the fiscal year to date; †–employment data for wage and salary workers only.

	April 1972	March 1972	April 1971	Year-to-date average 1972	Year-to-date average 1971
GENERAL BUSINESS ACTIVITY					
Estimates of personal income (millions of dollars, seasonally adjusted)	$ 3,749[p]	$ 3,797[p]	$ 3,507[r]	$ 3,747	$ 3,457
Income payments to individuals in U.S. (billions, at seasonally adjusted annual rate)	$ 909.7[p]	$ 905.6[p]	$ 843.0[r]	$ 902.5	$ 835.9
Wholesale prices in U.S. (unadjusted index)	117.5	117.4	113.3	117.1	112.7
Consumer prices in Houston (unadjusted index)	124.8	...	119.5	124.0	119.4
Consumer prices in U.S. (unadjusted index)	124.3	124.0	120.2	123.8	119.7
Business failures (number)	...	73	52	...	62
Business failures (liabilities, thousands)	$ ...	$ 28,138	$ 3,967	$ ...	$ 12,111
Sales of ordinary life insurance (index)	159.9	170.5	145.0	160.0	143.3
PRODUCTION					
Total electric-power use (index)	169.1[p]	158.3[p]	133.6[r]	161.7	133.6
Industrial electric-power use (index)	146.7[p]	139.5[p]	125.1[r]	144.1	125.2
Crude-oil production (index)	120.1[p]	113.2[p]	113.6[r]	112.3	114.0
Average daily production per oil well (bbl.)	19.9	18.6	18.3	18.5	18.3
Crude-oil runs to stills (index)	112.4	116.9	112.6	114.3	113.6
Industrial production in U.S. (index)	110.9[p]	109.8[p]	106.2[r]	109.5	105.7
Texas industrial production–total (index)	132.4[p]	128.9[p]	121.3[r]	127.6	120.9
Texas industrial production–total manufactures (index)	132.9[p]	130.4[p]	121.6[r]	129.3	121.2
Texas industrial production–durable manufactures (index)	141.9[p]	138.7[p]	131.1[r]	138.3	131.0
Texas industrial production–nondurable manufactures (index)	126.4[p]	124.4[p]	114.8[r]	122.7	114.2
Texas industrial production–mining (index)	123.9[p]	118.0[p]	115.6[r]	116.8	115.7
Texas industrial production–utilities (index)	160.9[p]	157.4[p]	139.5[r]	154.3	137.0
Urban building permits issued (index)	174.1	196.4	166.4	185.7	149.0
New residential building authorized (index)	183.2	224.1	179.8	207.0	165.1
New residential units authorized (index)	135.7	181.9	154.0	160.2	155.2
New nonresidential building authorized (unadjusted index)	169.0	168.0	129.4	170.8	124.0
AGRICULTURE					
Prices received by farmers (unadjusted index, 1910-14=100)	322	327	300	331	297
Prices paid by farmers in U.S. (unadjusted index, 1910-14=100)	427	423	408	423	404
Ratio of Texas farm prices received to U.S. prices paid by farmers	75	77	74	78	74
FINANCE					
Bank debits (index)	183.0	194.3	171.1	186.7	164.3
Bank debits, U.S. (index)	...	188.5	170.9[r]	...	168.3
Bank Commercial Loans outstanding (index)	128.1	129.2	121.2	126.7	121.1
Reporting member banks, Dallas Federal Reserve District					
Loans (millions)	$ 7,809	$ 7,615	$ 6,728	$ 7,564	$ 6,662
Loans and investments (millions)	$ 11,357	$ 11,153	$ 9,883	$ 11,063	$ 9,692
Adjusted demand deposits (millions)	$ 3,658	$ 3,801	$ 3,580	$ 3,688	$ 3,482
Revenue receipts of the state comptroller (thousands)	$ 337,912	$ 304,512	$320,893	$ 321,316	$ 291,594
Federal Internal Revenue collections (thousands)	$ 761,915	$1,029,765	$950,572	$7,257,605*	$6,235,577*
Securities registrations–original applications					
Mutual investment companies (thousands)	$ 16,065	$ 25,734	$ 33,031	$ 183,851*	$ 196,953*
All other corporate securities					
Texas companies (thousands)	$ 15,773	$ 24,608	$ 18,489	$ 194,230*	$ 104,648*
Other companies (thousands)	$ 63,738	$ 32,906	$ 25,789	$ 323,528*	$ 161,435*
Securities registration–renewals					
Mutual investment companies (thousands)	$ 20,255	$ 23,855	$ 36,672	$ 267,135*	$ 302,953*
Other corporate securities (thousands)	$ 2,931	$ 3,038	$ 5,654	$ 13,215*	$ 11,299*
LABOR					
Total nonagricultural employment in Texas (index)†	115.1[p]	115.6[p]	112.2[r]	115.4	112.4
Manufacturing employment in Texas (index)†	108.5[p]	108.7[p]	107.0[r]	108.6	107.5
Average weekly hours–manufacturing (index)†	99.4[p]	99.0[p]	97.7[r]	99.0	98.3
Average weekly earnings–manufacturing (index)†	129.5[p]	129.4[p]	121.1[r]	128.3	121.3
Total nonagricultural employment (thousands)†	3,751.3[p]	3,724.8[p]	3,659.4[r]	3,721.5	3,626.5
Total manufacturing employment (thousands)†	721.0[p]	718.5[p]	710.8[r]	716.1	708.3
Durable-goods employment (thousands)†	382.4[p]	380.3[p]	377.5[r]	378.8	376.0
Nondurable-goods employment (thousands)†	338.6[p]	338.2[p]	333.3[r]	337.2	332.3
Percent of total labor force unemployed	3.4	3.5	3.8	3.6	4.1
Total civilian labor force in selected labor-market areas (thousands)	3,598.0	3,576.8	3,503.4	3,570.7	3,484.0
Nonagricultural employment in selected labor-market areas (thousands)	3,378.1	3,367.0	3,282.3	3,358.7	3,271.8
Manufacturing employment in selected labor-market areas (thousands)	598.4	596.6	590.3	594.7	591.4
Total unemployment in selected labor-market areas (thousands)	131.8	131.7	133.6	133.1	135.5
Percent of labor force unemployed in selected labor-market areas	3.7	3.7	3.8	3.8	3.9

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ACTIVITIES AND RESOURCES OF THE GALVESTON BAY

by
Gary L. Holstrum
with
W. Reed Williams

In an effort to begin the accumulation of data on the benefits resulting from the activities of Galveston Bay and depending on its resources, the Texas Water Quality Board and the Bureau of Business Research at The University of Texas at Austin entered into an interagency contract for a study of the area which would supplement the research already accomplished in the development of cost data with research focusing on benefits.

Benefits data are more subjective than cost data, and for that reason more difficult of achievement in reliable estimates. The data presented in this study, though not ideally objective, represent a beginning for the development of decision models needed by water-resource managers.

Activities and Resources of the Galveston Bay, No. 33 in the Bureau of Business Research Area Economic Surveys, is part of the Galveston Bay Project in the Galveston Bay Work Plan of the Texas Water Quality Board. The study was prepared by Dr. Gary L. Holstrum, assistant professor of accounting at The University of Texas at Austin, with the assistance of W. Reed Williams.

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