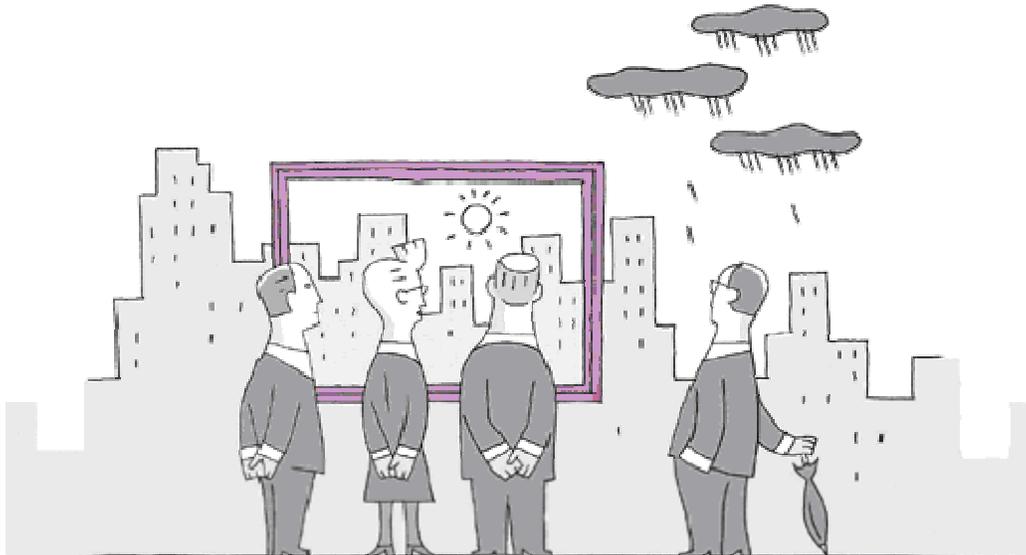


IBISWORLD INDUSTRY REPORT

Power and Communication Transmission Line Construction in the US

23492

4 May 2006



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Note:

Unless otherwise specified, an asterisk (*) associated with a number in a table indicates an IBISWorld estimate.
Unless otherwise specified, references to dollars are to US dollars.

INDUSTRY DEFINITION

This industry comprises: (1) establishments primarily responsible for the entire construction (i.e., new work, reconstruction, or repairs) of electric power and communication transmission lines and towers, radio and television transmitting/receiving towers, cable laying, and cable television lines; (2) establishments identified as power and communication transmission line construction management firms; and (3) establishments identified as special trade contractors engaged in activities primarily related to power and communication transmission line construction. Establishments in this industry may subcontract some or all of the actual construction work. Kinds of establishments include power and communication transmission line general contractors, design builders, engineer-constructors, and joint-venture contractors

ACTIVITIES (PRODUCTS AND SERVICES)

The primary activities of companies in this industry are:

- Electric Power Lines (new work, reconstruction and repair)
- Communication Transmission Lines (new work, reconstruction and repair)
- Communication towers (new work, reconstruction and repair)
- Radio Transmission/Receiving Towers (new work, reconstruction and repair)
- Television Transmission/Receiving Towers (new work, reconstruction and repair)
- Laying Telecommunication Cables (new work, reconstruction and repair)

The major products and services covered in this market research report are:

- Cable and conduit laying
- Heavy construction contractor & construction management
- Other

SIMILAR INDUSTRIES

Industry: [23491 - Water, Sewer and Pipeline Construction in the US](#)

Description: Firms mainly engaged in constructing heavy engineering structures such as water storage facilities, sewerage facilities and pipelines.

Industry: [23493 - Industrial Nonbuilding Structure Construction in the US](#)

Description: Firms mainly engaged in constructing heavy engineering structures such as chemical complexes, petroleum refineries, power plants, kilns and cement plants.

Industry: [23499 - All Other Heavy Construction in the US](#)

Description: Firms mainly engaged in constructing heavy non-building construction projects such as athletic fields, dams, golf courses, mass transit projects (other than roads and bridges) and harbors.

DEMAND & SUPPLY INDUSTRIES

For further market analysis, refer to the following upstream and downstream reports:

[22111 - Electric Power Generation in the US](#)

[22112 - Electric Power Transmission, Control and Distribution in the US](#)

[23311 - Land Subdivision and Land Development in the US](#)

[23493 - Industrial Nonbuilding Structure Construction in the US](#)

[23591 - Structural Steel Erection Contractors in the US](#)

[23593 - Excavation Contractors in the US](#)

[32612 - Plastics Pipe, Pipe Fitting and Unsupported Profile Shape Manufacturing in the US](#)

[32721 - Glass and Glass Product Manufacturing in the US](#)

[33121 - Iron and Steel Pipe and Tube Manufacturing from Purchased Steel in the US](#)

[33429 - Other Communications Equipment Manufacturing in the US](#)

[33592 - Communication and Energy Wire and Cable Manufacturing in the US](#)

[42139 - Other Construction Material Wholesalers in the US](#)

[42181 - Construction and Mining \(except Oil Well\) Machinery and Equipment Wholesalers in the US](#)

[51321 - Cable Networks in the US](#)

[51331 - Wired Telecommunications Carriers in the US](#)

[51333 - Telecommunications Resellers in the US](#)

[53241 - Construction, Transportation, Mining and Forestry Machinery and Equipment Rental and Leasing in the US](#)

[54 - Professional, Scientific and Technical Services in the US](#)

KEY STATISTICS**CONSTANT PRICES**

	2001	2002	2003	2004	2005	
Industry Revenue	*22,900.0	21,994.0	*18,700.0	*16,800.0	*16,200.0	\$Mill
Industry Gross Product	*15,850.0	15,024.0	*12,100.0	*10,600.0	*10,200.0	\$Mill
Number of Establishments	*5,850.0	5,844.0	*5,250.0	*5,000.0	*5,000.0	Units
Number of Enterprises	*5,750.0	*5,744.0	*5,150.0	*4,900.0	*4,900.0	Units
Employment	*175.0	173.2	*155.0	*140.0	*135.0	Thousands
Exports	N/A	N/A	N/A	N/A	N/A	
Imports	N/A	N/A	N/A	N/A	N/A	
Total Wages	*8,885.0	9,199.0	*8,250.0	*7,450.0	*7,200.0	\$Mill
Domestic Demand	NC	NC	NC	NC	NC	\$Mill

CURRENT PRICES

	2001	2002	2003	2004	2005	
Industry Revenue	*20,909.9	20,433.3	*17,726.2	*16,343.7	*16,200.0	\$Mill
Industry Gross Product	*14,472.6	13,957.9	*11,469.9	*10,312.1	*10,200.0	\$Mill
Number of Establishments	*5,850.0	5,844.0	*5,250.0	*5,000.0	*5,000.0	Units
Number of Enterprises	*5,750.0	*5,744.0	*5,150.0	*4,900.0	*4,900.0	Units
Employment	*175.0	173.2	*155.0	*140.0	*135.0	Thousands
Exports	N/A	N/A	N/A	N/A	N/A	
Imports	N/A	N/A	N/A	N/A	N/A	
Total Wages	*8,112.8	8,546.2	*7,820.4	*7,247.6	*7,200.0	\$Mill
Domestic Demand	NC	NC	NC	NC	NC	\$Mill

REAL GROWTH

	2001	2002	2003	2004	2005	
Industry Revenue	*3.6	-4.0	*-15.0	*-10.2	*-3.6	%
Industry Gross Product	*1.0	-5.2	*-19.5	*-12.4	*-3.8	%
Number of Establishments	*1.6	-0.1	*-10.2	*-4.8	*0.0	%
Number of Enterprises	*1.6	*-0.1	*-10.3	*-4.9	*0.0	%
Employment	*2.9	-1.0	*-10.5	*-9.7	*-3.6	%
Exports	N/A	N/A	N/A	N/A	N/A	%
Imports	N/A	N/A	N/A	N/A	N/A	%
Total Wages	*3.9	3.5	*-10.3	*-9.7	*-3.4	%
Domestic Demand	NC	NC	NC	NC	NC	%

RATIO TABLE

	2001	2002	2003	2004	2005	
Imports share of domestic demand	N/A	N/A	N/A	N/A	N/A	%
Exports share of revenue	N/A	N/A	N/A	N/A	N/A	%
Average revenue/employee	*0.13	0.13	*0.12	*0.12	*0.12	\$Mill
Wages & salaries share of revenue	*38.80	41.83	*44.12	*44.35	*44.44	%

MARKET CHARACTERISTICS

MARKET SIZE

The total US market for power and communication transmission line construction is contested by firms operating in this industry along with aligned heavy engineering construction industries, such as: NAICS 23491 water sewerage and pipeline construction; NAICS 23493 industrial non-building structure construction; and NAICS 23499 all other heavy construction. The market is also contested by the utility companies which typically maintain a limited number of in-house personnel for maintenance and construction activities.

The power and communication transmission line construction industry is estimated by IBISWorld to have generated revenue totaling \$16.2 billion in calendar year 2005, with value added of \$10.5 billion or accounting for approximately 0.1 per cent of US GDP. This represents a substantial decrease in industry revenue from \$21.994 billion recorded in the 2002 Economic Census, including value added of \$15.024 billion (all values shown in constant 2005 prices). There is negligible international trade in the power and communication transmission line construction services and therefore industry revenue is estimated to equate to the value of the domestic market.

At the time of the 2002 Economic Census, this industry generated 80.4 per cent of total revenue from work undertaken on private sector funded projects.

The power and communication transmission line construction industry is estimated by IBISWorld to have employed a workforce totaling 135,000 persons in calendar year 2005, substantially below the employment of 173,185 persons by this industry in the 2002 Economic Census. The industry comprised 5,844 establishments in 2002, but the slump in industry activity over recent years is estimated to have resulted in the number of competitors falling to approximately 5,000 establishments in calendar year 2005.

LINKAGES

Demand Linkages

- [22111 - Electric Power Generation in the US](#)
Fund construction of electricity transmission lines.
- [22112 - Electric Power Transmission, Control and Distribution in the US](#)
Fund construction of electricity transmission lines.
- [23311 - Land Subdivision and Land Development in the US](#)
Demand for transmission line installation services for the development of land for housing or nonresidential use.
- [23493 - Industrial Nonbuilding Structure Construction in the US](#)
Subcontract power and communication transmission line construction activities.
- [51321 - Cable Networks in the US](#)
Fund construction of communication transmission lines and cable laying.
- [51331 - Wired Telecommunications Carriers in the US](#)
Fund construction of communication transmission lines and cable laying.
- [51333 - Telecommunications Resellers in the US](#)

Fund construction of communication transmission lines and cable laying.

Supply Linkages

- [23591 - Structural Steel Erection Contractors in the US](#)

Provision of specialist trade skills used in the erection of transmission lines.

- [23593 - Excavation Contractors in the US](#)

Provision of specialist trade skills used for tunneling and site preparation for installation of subsurface transmission lines.

- [32612 - Plastics Pipe, Pipe Fitting and Unsupported Profile Shape Manufacturing in the US](#)

Supply of plastic components (e.g., conduit) used in construction

- [32721 - Glass and Glass Product Manufacturing in the US](#)

Supply of optic fiber telecommunications cable

- [33121 - Iron and Steel Pipe and Tube Manufacturing from Purchased Steel in the US](#)

Supply of steel components to construction

- [33429 - Other Communications Equipment Manufacturing in the US](#)

Supply of components to construction

- [33592 - Communication and Energy Wire and Cable Manufacturing in the US](#)

Supply of wiring and cable inputs to construction

- [42139 - Other Construction Material Wholesalers in the US](#)

Supply of construction products used in the installation and erection of transmission infrastructure, including ceramic electrical components, steel, and concrete structural components, and consumables.

- [42181 - Construction and Mining \(except Oil Well\) Machinery and Equipment Wholesalers in the US](#)

Source of construction equipment (lease or sale).

- [53241 - Construction, Transportation, Mining and Forestry Machinery and Equipment Rental and Leasing in the US](#)

Supply of lifting, elevation, and hydraulic pumping/drilling equipment

- [54 - Professional, Scientific and Technical Services in the US](#)

Supply of professional and technical design, surveying, mapping and drafting services on contract basis.

DEMAND DETERMINANTS

Growth in the power and communications transmission line construction industry is influenced by short and long term trends impacting on the each of the downstream infrastructure markets, technological advancements in the transmission of power and telecommunications, and investor sentiment into technology and energy stocks on equity markets.

Long term influences

- The overall pace of industry growth is determined by broad trends in GDP growth and the resultant demand for power and communications infrastructure to support development.
- The trends in national and regional population growth and interstate or intrastate migration flows influences the demand for the provision of electricity and communication infrastructure.
- Changes in the industrial structure of the US economy impacts on the long term demand for engineering construction activity to support the expansion of the telecommunications market.

- Demand for industry services is influenced by the requirement to upgrade existing capital stock due to aging (e.g., electricity switching stations, subterranean cables, broadcasting towers etc.) or the replacement of infrastructure due to technological obsolescence (inefficiency) or write-off.
- The level of private sector investment into transmission line infrastructure is primarily driven by: the expected rate of return; government encouragement to invest; and the growth in the spread and uptake of new communications technologies.

A key factor underpinning strong long term growth in demand for industry services is the widespread acceptance of technological advancements in the communications field, notably the growth in cable and DSL residential broadband subscriptions and the significant convergence in the downstream local and long distance telecommunications, electric power and cable TV markets. Market deregulation has boosted demand for increased bandwidth.

Short and medium term influences

Demand for industry services is influenced in the short term by the level of investor confidence, government taxation and deregulation policies and public sector capital outlays and budgets.

Private sector investor confidence is in the short term influenced by factors such as: current company profitability; the availability of borrowed funds or equity raising; the prevailing and expected level of interest rates.

Government policies influencing private sector investment decisions in the power and communications industries (including: taxation policies, tariff reform policies, regulatory reform, environmental controls).

Public sector capital expenditure policies are influenced by: the current fiscal position (surplus/deficit); the level of public sector debt; counter-cyclical infrastructure spending policies to stimulate or dampen domestic demand; and political imperatives typically stemming from electoral promises.

DOMESTIC AND INTERNATIONAL MARKETS

Domestic and International Markets Exports

The export level is low
The export trend is steady

Domestic and International Markets Imports

The import level is low
The import trend is steady

Domestic And International Markets Analysis

International trade in power and communication transmission line construction is limited as foreign contracts are generally only attainable by large scale firms. IBISWorld estimates industry exports (i.e., earnings from offshore construction contracts) account for less than 1 per cent of industry revenue annually and are equal to imports (i.e., profits repatriated to foreign-based parents of US contractors)

BASIS OF COMPETITION

Participants in the transmission line construction industry rely heavily on establishing a reputation for completing quality work within the time and budgetary constraints and developing a network of strong relationships with local communications suppliers and power generation/distribution corporations. The market generally places greater emphasis on quality rather than price-competitiveness as most projects are constructed directly for the end-user.

Large-scale establishments are often selected to submit tenders on private sector construction projects from a short-list of preferred contractors. The preference for selected contractors is based on the firms' demonstrated technical capabilities and size. These larger players compete on the basis of their capacity to provide end-to-end network solutions to the telecommunications, electric power and cable television industries by designing, installing, repairing and maintaining network infrastructure.

The convergence of the power and communications transmission market (both in infrastructure and ownership) yields a competitive advantage to firms technically capable of undertaking all types of construction projects.

Public sector authorities, at all tiers, open contracts in excess of \$50000 to tender and generally select the contractor on the basis of lowest price. Firms with the capacity to design, manage and construct projects often have a competitive advantage when tendering on large scale public sector contracts.

Small-scale contractors tend to rely heavily upon "word-of-mouth" referrals and maintaining good relationships with larger-scale prime contractors (both public and private sector) in order to secure contracts. Most smaller operators build reputations for specialized types of construction (e.g., transmission line erection or cable laying) focusing on a local regional market.

The geographically dispersed nature of power and communications transmission line construction limits the scope for economies of scale. Larger scale firms generally will expand their market share by establishing a presence across many geographic markets (often through acquisition) and will leverage on their established reputation to secure contracts and access materials, equipment and skilled subcontractors.

The capacity to compete on some projects in the power and communications transmission market requires contractors to provide surety bonds. The conditions in the surety market have deteriorated since the early 2000s due to the significant losses incurred in the construction market and the high level of corporate bankruptcies. Therefore the capacity of contractors to obtain the required surety bonds can influence the degree of competition on some contracts.

Some contractors have access to the latest technological advancements in transmission line construction, and sometimes proprietary technology, which significantly improves their success when competing for contracts.

Level and Trend in Competition

Competitive conditions in the power and communication transmission line construction industry are considered by IBISWorld to be medium and generally stable over the long term. The market is contested by contractors with demonstrated technical capabilities and is not subject to substantial substitution from outside this industry. Within the industry, much of the work is undertaken on long term contractual arrangements with the major utility or telecommunications companies and is subject to limited tender based on the proven capacity to deliver.

LIFE CYCLE

Life Cycle Stage

The life cycle stage is growth

Life Cycle Reasons

- Accelerated growth opportunities in the communications sector.
- Convergence of downstream industries has generated new investment into networks.
- Demand for maintenance and replacement of aging electrical transmission network.
- Demand generated by telephony cabling of households and the commercial sector.
- Increased demand for bandwidth to facilitate video, voice and data transmission.

Life Cycle Analysis

The power and communication transmission line construction industry is considered by IBISWorld to be in a growth stage of its lifecycle as the widespread acceptance of technological advancements in the communications field directly stimulates demand for industry services. The communications segment of this industry offers particularly strong growth prospects as the laying of optic fiber cables to deliver advanced telephony services to individual households and businesses provides the opportunity for accelerated growth.

Increased demand for bandwidth to facilitate video, voice and data transmission over the outlook period will require the telecommunications and cable television providers to expand and upgrade their existing networks. Cable and DSL residential broadband subscriptions are projected to accelerate over the outlook period. New entrants into the telephony, internet and cable TV markets must immediately install a comprehensive network to be competitive.

There has been a significant convergence in the downstream industries (local and long distance telecommunications, electric power and cable TV) since the mid-1990s in response to the deregulation of utility markets, and the demand for increased bandwidth. This convergence has stimulated greater investment into network infrastructure whilst also providing participants in the power and communication transmission line construction industry with the opportunity to service much larger customers across a multiple product base.

The electric power transmission and distribution market is estimated by IBISWorld to be in a mature stage of development although the aging of existing infrastructure coupled with increased in competition (deregulated electric power industry) is expected to generate substantial new investment into transmission and distribution infrastructure involving new construction and increased maintenance.

Electric power providers are increasingly seeking to outsource non-core activities such as network maintenance and construction and this industry is expected to directly benefit from this trend.

SEGMENTATION

PRODUCTS AND SERVICE SEGMENTATION

Product/Services	Share
Cable and conduit laying	52.9%
Heavy construction contractor & construction management	42.1%
Other	5.0%

This industry supplies a range of design, construction, repair and maintenance services to the telecommunications, electric power and cable TV industry. Contractors construct transmission towers and lay subterranean and overhead fiber optic, coaxial cables, copper wires and energized power networks.

The major construction activity undertaken by this industry is cable and conduit laying which accounted for 52.9 per cent of industry revenue in the 2002 Economic Census. This represents a marginal increase from 49.1 per cent of revenue at the time of the 1997 Economic Census, reflecting the convergence of telecommunication and utility delivery.

Heavy construction contracting and construction management activities are estimated by IBISWorld to have accounted for 42.1 per cent of work done by this industry in the 2002 Census (down marginally on 44.9 per cent in the 1997 Census). Much of this activity relates to the erection of transmission towers and infrastructure for supporting cables.

Other construction activities undertaken by firms operating in this industry generally fall outside the normal operations of this industry and includes building construction erection and cabling, and electrical equipment installation in buildings.

Since the mid-1990s, there has been a notable shift in industry activity away from work on new structures and towards renovation and maintenance activities. Private and public utility companies are increasingly looking to outsource specialist activities such as transmission line maintenance and repair to contractors, rather than maintaining a permanent inhouse maintenance capacity. In the 2002 Economic Census, this industry derived 57.2 per cent of its revenue from the construction of new transmission infrastructure (down from 64.1 per cent in the 1997 Census). Over this same period, the revenue generated from work involving alterations and additions to existing infrastructure increased to 21.6 per cent in 2002 (from 17.2 per cent in 1997), and the revenue was derived from the provision of maintenance and repair services on existing infrastructure rose to 21.2 per cent in 2002 (from 18.7 per cent in the 1997 Census).

MAJOR MARKET SEGMENTS

Market Segment	Share
Privately funded construction	82.0%
State & Local Government funded construction	11.0%
Federal Government funded construction	7.0%

Analysis:

The bulk of revenue in the power and communication transmission line construction industry is generated from work for private sector clients. Approximately 82 per cent of industry revenue recorded in the 2002 Economic Census was generated from work undertaken for private sector clients (consistent with the 1997 Census), 11 per cent was derived from work on state and local government funded projects (down from 15 per cent in 1997 Census), and 7 per cent of revenue was derived from work on federally funded projects (up from 3 per cent in 1997 Census).

Private sector clients mainly include the local and long distance telecommunications, electric power, and cable television providers, such as: Adelphia Communications, AOL Time Warner, AT&T, Georgia Power, Nevada Power, Pacific Bell, Puget Sound Energy, Qwest, Sprint PCS and UtiliCorp United.

Deregulation over the past decade and demand for increased bandwidth has led to greater convergence across the segments of this market with the clients seeking to leverage their rights-of-way and other existing assets to deliver a holistic range of services. The Edison Electric Institute estimates that over half of the listed electric utilities have a telecommunications related subsidiary.

INDUSTRY CONCENTRATION

The level of concentration is low

The power and communications transmission line construction industry has a low to medium level of concentration by comparison with the general economy. The four largest enterprises in this industry are estimated by IBISWorld to account for around 20 per cent of annual industry revenue, and the eight largest enterprises account for around 30 per cent of industry revenue.

The relative small scale nature of most of the businesses operating in this industry is evident in the distribution of establishments by employment size measured in the March 2003 survey of County Business Patterns. A significant share of establishments employed fewer than five persons in March 2003 (41.4 per cent), and in total 59.4 per cent of establishments employed fewer than ten persons. By contrast, only 5.3 per cent of industry establishments employed more than 100 persons in March 2003 (281 establishments), with around 47 very large scale establishments employing over 500 persons (0.9 per cent of total). The table below shows the distribution of establishment by employment size in March 2003.

Table: Distribution of Industry Establishments by Employment Size

No. of persons	Units No. of Estabs	Percentage % Share
1 to 4	2196	41.4
5 to 9	954	18.0
10 to 19	855	16.1
20 to 49	720	13.6
50 to 99	304	5.7
100 to 249	175	3.3
250 to 499	59	1.1
500 to 999	24	0.5
1000 or more	23	0.4

Note: March 2003

GEOGRAPHIC SPREAD

Year: 2003

Table: Distribution of Employment by Region

Region	Percentage
South East	34.8
Far West	18.1
Great Lakes	14.7
South West	10.8
Mid East	9.6
Plains	5.3
Rocky Mountains	5.1
New England	1.6

Table: Distribution of Payroll by Region

Region	Percentage
South East	30.1
Far West	20.8
Great Lakes	14.7
Mid East	11.7
South West	9.8
Plains	5.4
Rocky Mountains	5.4
New England	2.1

Table: Distribution of Establishments By Region

Region	Percentage
South East	29.3
South West	15.0
Great Lakes	13.0
Far West	12.5
Mid East	10.7
Plains	10.4
Rocky Mountains	5.1
New England	4.0

The distribution of power and communications transmission line construction industry activity bears some correlation to the distribution of population or general economic activity across the United States, along with a relationship to the land area within each region. The South East and Far West regions have the highest concentration of US population and economic activity and the highest share of industry employment and payroll. These regions also have a wide geographic dispersal of population and economic activity and therefore the communication and power

transmission networks cover a wide area. The analysis of the distribution of industry activity by region is based on the March 2003 survey of County Business Patterns.

The South East region, which covers 12 states including Florida and Georgia, represents the largest region in the US, accounting for approximately 22 to 24 per cent of national population and economic activity. In March 2003, the South East region held a dominant share of industry activity, accounting for 34.8 per cent of industry employment and 30.1 per cent of payroll. This concentration of activity in the South East reflects the many large geographically dispersed population settlements across the region, relative to the more concentrated settlement patterns in the Mid East and Far West regions.

The Far West's share of industry activity closely corresponds with the region's share of the national population and economic activity. In March 2003, the Far West region accounted for 18.1 per cent of industry employment in March 2003 and 20.8 per cent of industry payroll. There is a high volume of power and communication transmission between the major metropolitan areas within California and the electric generating facilities are often located some distance from the population nodes.

The Great Lakes region has high volume transmission flows in both communications and power to meet the demands of the major population nodes (including Chicago, Cincinnati and Buffalo). In March 2003, the Great Lakes region accounted for 14.7 per cent of industry employment and payroll, corresponding with the region's share of national population and economic activity.

The Mid East region accounted for 9.6 per cent of industry employment and 11.7 per cent of payroll in March 2003, which falls below the region's share of the national population and economy (around 13 to 15 per cent annually), but probably reflects the more concentrated and stable urban population settlement.

The South West region, accounted for 10 to 11 per cent of industry employment and payroll in March 2003, and the Rocky Mountains region accounted for 5 to 5.5 per cent of industry employment and payroll, both broadly corresponding with the regional share of the national economy and population.

The Plains region, accounted for 5 to 5.5 per cent of industry activity in March 2003, and the New England region accounted for 1.6 per cent of industry employment and 2.1 per cent of payroll. Industry activity in each of these regions was below the each regions' share of national population and economic activity.

INDUSTRY CONDITIONS

BARRIERS TO ENTRY

The level of barrier is low

The trend of barrier is increasing

- New entrants have no significant technological disadvantage.
- Economies of scale are limited due to the geographic dispersal of contracts.
- Convergence in the communication and electricity transmission market benefits existing players.
- Existing players may be better placed to adapt to the wide fluctuations in demand.
- Existing players likely to have contractual arrangements with the major utility and communications companies.

Analysis

Economies of scale are limited in the power and communication transmission line construction market due to the geographic dispersal of contracts. The large scale contractors generally have representation across the localized markets but new entrants can generally compete effectively on smaller scale local contracts (particularly maintenance and repair work on electrical and telephony cables).

Small-scale firms tend to rely on reputation and networking in the construction sector to obtain contracts, however new entrants have no significant technological disadvantage and capital costs are fairly small as specialized equipment is either leased or provided by the material suppliers.

The growing convergence in the communication and electricity transmission market benefits existing industry participants with established links with the major communication and electricity providers in each regional market. Leading power generators and telephony companies tend to enter into long term construction and maintenance arrangements with contractors with a proven capacity to complete work of satisfactory standard within time and budget constraints. This may limit the entry of new competitors in some geographic markets.

New entrants may be disadvantaged by the wide annual variations in communications and electricity infrastructure investment and hence demand for industry services. Existing players may be better placed to judge and ride out these dramatic changes in demand conditions.

Many of the players in this industry have a concentrated customer base, undertaking ongoing contracts for major regional utilities or telecommunication providers. This concentration exposes industry participants to the investment choices and contract allocation decisions of customers. New entrants to this industry more likely to have a narrower customer base than existing players and hence are more exposed to the investment decisions of a few customers.

Given the high profile bankruptcies that have characterized this industry in recent years, it is likely that clients will more closely scrutinize the capacity of new entrants to deliver services and maintain financial integrity when letting new contracts. New entrants without a proven track record may be seriously disadvantaged by the volatility displayed in the market during recent years.

TAXATION

There are no specific taxation issues for this industry

- No specific taxation applies to this industry.

INDUSTRY ASSISTANCE

The level of Industry Assistance is none
The trend of Industry Assistance is steady

There are no specific tariffs for this industry.

There is no formal protection for local firms against foreign competitors as this industry is essentially a service provider and hence tariff protection is not applicable.

REGULATION AND DEREGULATION

The level of Regulations is medium
The trend of Regulations is steady

The regulatory environment governing activity in this industry is complex and involves all tiers of government. Strict planning guidelines and construction standards govern most aspects of industry activity and contractors must meet both contracted and coded specifications. The failure to comply with applicable regulations and standards may result in substantial fines or revocation of operating licenses.

The deregulation of the telecommunications markets over the past decade has spurred new investment by cable television companies, local exchange carriers and long distance companies in order to protect their customer base. The capacity for participants in the telecommunication market to expand their market reach across regions and different products/services has stimulated demand for increased power and communication transmission line construction.

The deregulation of the electric power industry has similarly encouraged firms to seek new lines of business (many have acquired telecommunication subsidiaries) and innovative methods to reduce costs. Firms have sought to outsource non-core activities such as construction and line maintenance whilst simultaneously developing network convergence between telecommunications and power. This has stimulated solid growth in demand for construction services.

State and Local Government-based statutory regulations cover issues such as: potential pollution (noise and effluent); competing land usage; construction codes; disruption to existing traffic flow; and occupational health and safety issues. The environmental impact of the transmission line infrastructure and construction techniques have come under increasing regulatory controls during the past two decades with state public authorities requiring environmental impact statements detailing the likely impact on flora, fauna, and humans, along with post-construction clean up policies. This industry is subject to environmental regulations and standards governing the handling, transportation and disposal of non-hazardous and hazardous substances and wastes; and emissions or discharges into the to air, surface water and groundwater and soil.

Given the substantial level of highly technical contracts for which this industry tenders, many of the participants in this industry hold international accreditation standards to gain access to the

tendering process. This accreditation includes the standard ISO 9001:1994 and specific ISO accreditation for specialized applications.

There is no officially required accreditation participants must possess in order to operate in this industry, however six major trade and professional associations have officially endorsed the American Institute of Constructors (AIC) Constructor Certification program which qualifies individuals through education, experience and examination for the professional designations Associate Constructor (AC) and Certified Professional Constructor (CPC). All CPC's are required to maintain their credentials through a program of Continuing Professional Development. Since 1997, the AIC accreditation program has sought to strengthen its professional rigor and meet international accreditation standards. The associations which currently endorse the AIC certification include: Associated General Contractors of America; American Subcontractors Association; Associated Builders and Contractors; the Business Roundtable; American Council for Construction Education; and American Society of Professional Estimators.

COST STRUCTURE

Year: 2002

Item	Cost %
Wages	33.5%
Subcontract costs	13.3%
Purchases	12.6%
Fringe Benefits	8.3%
Depreciation	5.0%*
Rent	2.2%
Utilities	1.0%
Other	2.6%
Profit	21.5%*

Analysis

The power and communications transmission line construction industry allocates a just over half its annual revenue to total labor payments, comprising direct employee compensation payments and subcontracted labor costs.

Employee compensation payments absorbed a total 41.8 per cent of industry revenue in the 2002 Economic Census, up from 38.2 per cent in the 1997 Census, due to an estimated swing towards firms opting to directly employ permanent workers rather than rely on subcontracted labor. Employee compensation payments comprised payroll costs of 33.5 per cent of industry revenue in 2002, and fringe benefit payments accounted for 8.3 per cent of revenue.

Industry subcontract labor payments accounted for 13.3 per cent of industry revenue in the 2002 Census, roughly consistent with its share in the 1997 Census (14.0 per cent). This industry regularly subcontracts work to specialist construction firms such as structural steel erectors, and electrical contractors.

Total nonlabor purchases and expenses incurred by this industry accounted for just 18.4 per cent of industry revenue in the 2002 Census. The total cost of construction materials, components and supplies accounted for 12.6 per cent of industry revenue in the 2002 Census and the cost of

power, lubricants and fuels accounted for just 1 per cent of revenue. Rental costs for machinery, equipment and buildings absorbed 2.2 per cent of industry revenue in the 2002 Census, and other business expenses, such as communication charges, equipment repair, and business administration absorbed 2.6 per cent of industry revenue.

Industry gross surplus (i.e., operating profit before deducting taxation, depreciation and financial costs), accounted for 26.5 per cent of industry revenue in the 2002 Census (representing industry value added less employee compensation). The sharp decline in downstream construction markets is estimated to have caused industry profitability to narrow considerably since the late 1990s, with the gross operating surplus falling from approximately one-third of revenue in 1998. Industry depreciation charges are estimated to have accounted for around 5 per cent of industry revenue in calendar year 2002 (consistent with 4.8 per cent in the 1997 Census), and therefore IBISWorld estimates total industry return (before tax and interest) was around 21.5 per cent of industry revenue in the 2002 Census year.

CAPITAL AND LABOR INTENSITY

The level of capital intensity is low.

- Relatively high direct labor costs absorbing 41.8 per cent of revenue in the 2002 Census.
- The larger players in this industry invest heavily into specialist cable rolling and handling equipment.
- Capital equipment often leased by small contractors or activities subcontracted to specialist operatives.
- Industry capital expenditures and depreciation charges absorb 4 to 5 per cent of annual revenue.

Analysis

The power and communications transmission line construction industry is considered by IBISWorld to have a low to medium level of capital intensity by comparison with the general economy, although the industry is much more reliant on capital inputs than most construction industries.

The principal value added by this industry is derived from the provision of skilled labor services, and direct labor costs (i.e., employee compensation) accounted for 41.8 per cent of industry revenue in the 2002 Economic Census. Despite this heavy reliance upon labor resources, this industry annually allocates approximately 4 to 5 per cent of revenue on capital expenditures other than land (consistent with the 1997 and 2002 Economic Census) and industry depreciation charges account for around 5 per cent of revenue (4.8 per cent in 1997 Census).

An industry's labor/capital intensity may be measured by the ratio of labor costs (i.e., employee compensation) to depreciation charges, which indicates the amount of revenue absorbed by the relative labor and capital inputs to construction. The industry's labor cost to capital depreciation ratio is estimated by IBISWorld to have been around 8.4:1 in the 2002 Census (8:1 in the 1997 Census), which is below the average for the total construction sector (12:1), but above the average for the total US economy (around 5.5:1).

Much of the capital expenditure undertaken by this industry is concentrated in several of the medium to large scale players which invest into equipment for handling and rolling out cable, coupling machinery, digging and pumping machinery. Quanta Services, a leading player in this industry, maintained a rolling-stock fleet of approximately 19,600 units in December 2004, comprising leased and owned trucks, trailers, and specialty construction equipment (e.g.,

backhoes, excavators, trenchers, generators, boring machines, cranes, wire pullers, and wire tensioners).

Many of the small scale contractors in this industry source their capital equipment requirement through leasing equipment on a piecemeal basis or subcontracting in specialist operatives (e.g., crane operators and structural steel erectors).

TECHNOLOGY AND SYSTEMS

The rate of technology change in technology systems is high.

The power and communications transmission line construction industry is subject to a high degree of technological change in construction methods, materials used and product end-use.

The impact of the convergence of the downstream telephony, electric power and cable TV markets has led the industry to utilizing new construction methods for cable rollout or overhead line construction to incorporate multiple products on the one network (i.e., electric wire, optic fiber, and coaxial cable).

The increasing demand for the installation of Fiber to the Premises (FTTP), and Fiber to the Node (FTTN), by the large telecommunications companies to deliver integrated IP-based television, high-speed Internet and IP voice and wireless bundles of products and services to households and corporate customers.

The rapid acceptance of emerging internet, voice and data transfer technologies across the US population (household and business) has dramatically increased the demand for higher bandwidth (Cable and DSL residential broadband subscriptions are projected to grow at a compound annual growth rate of 63 per cent between 2000 and 2005). Industry participants competing in the power and communications transmission market are increasingly required to have capabilities in constructing a wide range of network infrastructure including:

- fiber optic, copper and coaxial cable installation for video, data and voice transmission;
- design, construction and maintenance of DSL networks;
- erection of cellular, digital, PCS(R), microwave and wireless communications towers; design and installation of switching systems for incumbent local exchange carriers, newly competitive local exchange carriers, regional Bell operating companies and long distance providers;
- trenching and plowing applications;
- horizontal directional boring;
- rock saw, rock wheel and rock trench capabilities;
- vacuum excavation services;
- splicing and testing of fiber optic and copper networks; and
- cable locating and fault assessment.

Much of the focus of technological advancement in transmission line construction is to minimize the environmental impact of the infrastructure. This is evident in electric underwater cable design which contains no liquid, therefore avoiding leakage, and the widespread use of HVDC (High Voltage Direct Current) Light technology which allows for more capacity in a smaller cable and enables a greater level of transmission with fewer cables. Also advancements in the technology used for burying cables below ground has reduced the negative impact of the environment. Contractors are increasingly installing cables by using high powered water jets to suspend the sediment while the cable drops into the trench (to avoid conventional digging and dredging techniques).

Quanta Services, one of the leading players in this industry, holds proprietary technology of the LineMaster (trademark) robotic arm, which enables the Quanta to provide power companies with construction services which minimize the interruption in the power supply to their customers.

While technological changes have generally supported industry expansion over the long term, the emergence of some wireless technologies are likely to displace the demand for the installation of wireline systems used for voice, video and data transmissions. In addition, improvements to existing technology on wireline infrastructure can allow for significantly increased telecommunication capacity without physically upgrading the existing networks.

INDUSTRY VOLATILITY

The level of Volatility is very high.

- Industry extremely vulnerable to the cyclical fluctuations in private investment.
- Destabilized by the volatility in telecommunication equity prices, and hence investment into new infrastructure.
- Volatility heightened by the deregulation of downstream telecommunications and electricity markets.
- Industry growth underpinned by technological advancements in telecommunications.
- Volatility partly moderated by ongoing maintenance and repair activities.

GLOBALIZATION

The level of Globalization is low.
The trend of Globalization is increasing.

The power and communication transmission line construction services industry is considered to have a low level of globalization with negligible international trade and no evidence of foreign ownership among the major players. Over the past decade the degree of globalization is estimated to have increased marginally through US contractors contesting business in the neighboring Canadian market, typically undertaking work for US-based utility companies.

MasTec Inc., a leading player in this industry, started building a presence in Latin America during the mid-1990s but sustained losses saw the firm redirect activities back to the US market in the late 1990s. MasTec currently telecommunications construction services through a joint venture in Brazil, and has in Canada.

PERFORMANCE

CURRENT PERFORMANCE

The power and communication transmission line construction industry is estimated by IBISWorld to have recorded an accelerated growth phase during the late 1990s and early 2000s, stemming from the unprecedented expansion in private sector investment into both communications and electric power infrastructure. Investment into communications infrastructure surged in the late 1990s to a record cyclical peak in 2001, associated with the deregulation of the local telecommunications and broadcasting industry and the increased investment into network bandwidth in order to supply the upsurge in demand of emerging technologies (e.g., internet access, cable TV etc.). Investment into electric power infrastructure construction also grew at an accelerated pace to a record cyclical peak in 2001, driven by strong demand for electricity and the impact of industry deregulation. However, the demand for industry services in these downstream markets has contracted sharply since 2001, in response to the recession-induced volatility of technology-based stocks on US equity markets, and the difficulties stemming from the deregulation of the electric power generation and distribution market.

Industry revenue is estimated by IBISWorld to have contracted by an average -6 per cent per annum over the five years to December 2005, corresponding with the downward trend in investment into the downstream markets following the extraordinary levels of activity prior to 2002. The combined impact of the growth profiles in the downstream electric power and communications infrastructure markets is estimated to have resulted in accelerated growth in industry revenue exceeding 25 per cent per annum in 1999 and 2000, before contracting by almost -30 per cent in the four years to 2005. The annual level of industry revenue is estimated by IBISWorld to have averaged approximately \$19.3 billion per annum over the past five years to 2005, or around 20 per cent above the estimated average of \$16.2 billion per annum over the previous five years to December 2000 (in constant 2005 prices).

Investment into the construction of electric power infrastructure doubled between 1997 and 2001, mainly in response to the restructuring of the utilities market following deregulation. Since 2002, the value of electric power infrastructure construction has trended downwards to decline by -26.3 per cent in the past four years, and average a decline of -4.7 per cent per annum over the five years to December 2005. The value of construction in the electric power distribution market has oscillated widely on an annual basis since the mid-1990s but averaged flat growth of 0.4 per cent per annum over the five years to 2005.

Investment into communications infrastructure surged by 45.5 per cent during 1999, and stabilized at this record level of activity during 2000 and 2001 before contracting by -37.5 per cent over the two years to 2003. Given the collapse in this market, the value of construction in the communications infrastructure market averaged a decline of -7.5 per cent per annum over the five years to December 2005. The table below shows the growth in the value of construction put into place in the downstream markets since the mid-1990s.

Table: Growth in the value of construction put into place in the privately funded downstream construction markets.

Calendar Year	Billion Dollars Communications	Billion Dollars	Billion Dollars Electric Power	Billion Dollars	Billion Dollars Distribution	Billion Dollars
1998	14.50	N/C	16.25	N/C	1.76	N/C
1999	21.09	45.4%	19.74	21.5%	1.71	-2.8%

2000	21.08	0.0%	28.92	46.5%	1.66	-2.9%
2001	21.46	1.8%	30.91	6.9%	1.14	-31.3%
2002	19.79	-7.8%	30.15	-2.5%	1.45	27.2%
2003	13.41	-32.2%	30.07	-0.3%	2.09	44.1%
2004	13.75	2.5%	24.46	-18.7%	1.63	-22.0%
2005	14.18	3.1%	22.78	-6.9%	1.69	3.7%
Ann Ave Gth		N/C		N/C		N/C
%pa 2000-2005	-7.6	N/C	-4.7	N/C	0.4	N/C

Note: In constant 2005 prices. Total Electric Power includes Distribution Infrastructure

The downstream markets for power and communication transmission line construction have converged over the past decade in response to market deregulation and the demand for higher telecommunications bandwidth. Deregulation of the local and long distance telecommunications market, the electric power market and the broadcasting industry has resulted in substantial structural change in each market as competitors move to broaden their geographical market and simultaneously invest into technologically advanced products to ensure competitiveness in existing markets. Deregulation has also seen a broadening of the product base in these downstream industries with around half the publicly listed electric power providers acquiring telecommunication subsidiaries and cross-ownership between media and telecommunication companies becoming a feature of America's corporate landscape.

The convergence between the key downstream markets resulted from the need for power and communication suppliers to establish a broad-based network servicing both household and commercial customers. The electric power suppliers have an established but aging transmission distribution network which includes "right-of-way" access and other infrastructure. The more competitive environment in the power industry has forced many of these utilities to invest into upgrading the existing network and looking at expanding transmission capacity into adjacent regional markets.

Convergence has seen the telecommunication and cable TV providers accessing the existing network infrastructure of the power suppliers which has stimulated greater investment into the total downstream power and communication transmission infrastructure market and provided industry participants with the opportunity to service much larger customers across a multiple product base. Demand for industry services was also boosted in recent years from the move by electric power companies to outsource non-core activities such as the construction and maintenance of the transmission network at the same time as the industry moves to upgrade and expand the network.

During the late 1990s and early 2000s, the United States recorded an unprecedented investment boom in new powerplant construction, with around 83,000 Mw of new capacity added between 1999 and 2001, adding almost 10 per cent to the national generation base. The robust growth in the electric power transmission segment of this industry principally benefited those contractors holding exclusive supply contracts with the major utilities and merchant developers. The growth in the downstream electric power infrastructure market is estimated by IBISWorld to have offset the plateauing in growth in the communications construction market during 2000 and 2001 which reflected the dampening in investor confidence due to volatility in share equity prices.

The pace of industry revenue growth is estimated by IBISWorld to have remained buoyant in calendar year 2001, rising by 3.6 per cent to a record \$22.9 billion (in constant 2005 prices), underpinned by large scale contracts to complete electric power construction projects. The pace of industry expansion was partly contained by the subdued growth conditions in the

communications infrastructure market (1.8 per cent) and the slump in the value of electric distribution infrastructure construction (-31.5 per cent). Demand for industry services was primarily supported during 2001 by the 6.9 per cent growth in the value of electricity infrastructure construction, to a record level at around 90 per cent above the level in 1998. The growth in privately funded electric infrastructure construction is estimated by IBISWorld to have greatly outweighed the impact of the -30 per cent contraction in the value of publicly funded construction of electricity distribution infrastructure.

Partly constraining industry expansion during calendar year 2001 was the trend by telecommunications firms to redirect investment away from roll-out programs for the broadband network towards shoring up stronger areas of telephony demand, however, the softer demand in the communications construction market was partially cushioned by stable conditions in the electric power infrastructure market. Despite the expansion in construction demand in 2001, this industry encountered difficult trading conditions in several regional markets (notably California), partly associated with the negative impact on investor sentiment arising from the collapse several leading energy and communications companies (e.g., Enron and Worldcom) which resulted in several leading players in this industry filing for Chapter 11 bankruptcy protection.

Since the record cyclical peak in 2001, IBISWorld estimates that demand conditions for this industry have contracted sharply in response to the marked cyclical contraction in investment into the communications and electric power infrastructure markets. In calendar year 2002, industry revenue is estimated by IBISWorld to have fallen by -4.0 per cent to total \$21.994 billion in the 2002 Economic Census (in constant 2005 prices), with industry employment numbering 173,185 persons in 5,844 establishments. The value of construction put into place in the downstream communications and electric power infrastructure markets contracted by -7.8 per cent and -2.5 per cent respectively during 2002, although work done on facilities management contracts is likely to have helped cushion the full extent of the impact on industry revenue. Demand from the communications market has slumped in recent years due to the impact of the dilution of stock equity values and the slower than expected take-up of broadband technology. Telecommunications infrastructure investment was significantly eroded due to the subdued pace of US economic recovery and the heightened uncertainty following the slump in the fortunes of Enron and WorldCom.

The slump in demand for industry services is estimated by IBISWorld to have impacted heavily during calendar year 2003, driving industry revenue down by 15 per cent to \$18.70 billion (in constant 2005 prices), corresponding with the combined impact of the -32.2 per cent fall in the value of communications infrastructure construction, and the -0.3 per cent fall in electric power infrastructure construction. The demand for industry services was partially buoyed by the 43.9 per cent surge in the value of power distribution line construction during 2003, although IBISWorld estimates this failed to offset the severe decline in communication transmission tower construction and the installation of switching stations at newly commissioned power plants. Industry employment is estimated to have fallen by -10.5 per cent to 155,000 persons in 5,250 establishments during calendar year 2003.

Each of the major players in this industry reported significant declines in revenue and profitability since 2001 as key customers endured difficult financial conditions. Many smaller scale players ceased trading in recent years and several of the leading players in this industry filed for bankruptcy. Bracknell Corporation collapsed in bankruptcy in 2002 partly due to the debt incurred through its earlier acquisition of Able Telcom (2000) which at the time had a lucrative contract spanning six years to undertake WorldCom's network buildout. Orius Corp. filed for Chapter 11 bankruptcy protection in November 2002 in response to the continued downturn in the US telecommunication market after previously recording a -38.9 per cent decline in sales revenue for the nine months ending September 2002. Orius reported that the baby Bells had cut their construction budget with Orius by half in 2001 and by another 25 per cent in 2002 (Orius emerged from Chapter 11 protection in early 2003 following the acceptance of its reorganization

program). Other leaders in this industry Quanta Services and Dycom both reported substantial revenue declines in 2002 (Quanta -13.1 per cent and Dycom -24.5 per cent) with both firms making provisions against customers experiencing financial difficulties or bankruptcy. Dycom reported that the slump in the telecommunications market over the past two years reflects the decrease in capital spending by major customers (e.g., several cable customers, telecommunications providers and incumbent local exchange carriers), bankruptcies of some customers, and the overall downturn in the economy.

Industry revenue is estimated by IBISWorld to have maintained its sharp cyclical decline during 2004, falling by -10.2 per cent to \$16.80 billion (in constant 2005 prices), in response to the deepening contraction in the value of construction electric power generation infrastructure (-18.7 per cent), and the slump in electric power distribution facility construction (-22.1 per cent). The minor cyclical improvement in the value of communication infrastructure construction is likely to have only marginally cushioned this industry from the full impact of the decline in the power infrastructure market. The pace of cyclical decline in industry revenue is estimated to have slowed during 2005, reflecting the slower decline in the value of electric power construction (-6.9 per cent), and improved demand of around 3 to 4 per cent in the other infrastructure markets. IBISWorld estimates that the power and communications transmission line construction industry generated revenue totaling \$16.20 billion in calendar year 2005 (-3.6 per cent in constant 2005 prices), representing a decline by -26.4 per cent since the 2002 Economic Census, and the lowest annual revenue since 1998.

Contractors focusing on the electric power transmission market are likely to have faced deteriorating demand conditions during the two years to December 2005, while the modest cyclical upswing of around 3 per cent per annum in the value of communications infrastructure construction is likely to have marginally boosted demand for cable and conduit laying operations. Industry employment is estimated by IBISWorld to have fallen to 135,000 persons in 5,000 establishments by calendar year 2005, representing an average decline in employment by -4.5 per cent per annum over the past five years.

Industry Value Added

The power and communications transmission line construction industry is estimated by IBISWorld to have recorded a significant cyclical contraction in value added over the five years to 2005 (-8.3 per cent per annum), reflecting the collapse in industry profitability as demand conditions deteriorated post-2001. The buoyant demand conditions in the late 1990s enabled firms to significantly widen profit margins, resulting in industry value added climbing from 65.7 per cent of revenue in the 1997 Census, to an estimated 71 per cent of revenue in 2000. The subsequent collapse in industry activity saw the value added share of revenue fall to 68.3 per cent in the 2002 Economic Census, and to an estimated 63 per cent of revenue by 2005.

The gross operating surplus component of value added (i.e., operating profit before taxes, interest costs, and depreciation), is estimated by IBISWorld to have fallen by an average -16 per cent per annum over the five years to December 2005, stemming wholly from the collapse by around -60 per cent since the estimated cyclical peak in 2000. By contrast, industry employee compensation is estimated by IBISWorld to have fallen by a relatively moderate 3.4 per cent per annum over the past five years to 2005, reflecting the estimated decline of -4.5 per cent per annum in industry employment, and some growth in real unit labor rates. Industry reliance on a subcontracted labor supply is estimated to have fallen sharply in recent years, as contractors responded to the adverse demand conditions by immediately trimming subcontractor costs.

HISTORICAL PERFORMANCE

The power and communications transmission line construction industry is estimated by IBISWorld to have displayed an erratic pattern of cyclical growth throughout the 1990s based on the widely divergent trends in the downstream construction markets. Industry revenue is estimated by IBISWorld to have averaged robust growth of 8.5 per cent per annum over the five years to December 2000, greatly exceeding the pace of US GDP growth (4.1 per cent per annum), and underpinned by accelerated growth in the value of construction of communications infrastructure (9.3 per cent per annum), electric power distribution facilities (13.2 per cent per annum), and electric power generation infrastructure (7.7 per cent per annum).

Following robust growth of almost 50 per cent in the two years to 1992, the value of electric power infrastructure construction declined sharply during the mid-1990s, contracting by -36 per cent over the four years to 1997, before rebounding by 93 per cent over the next three years to December 2000. Construction activity in the communications infrastructure market grew moderately for much of the mid-to-late 1990s supported by the spread of information and communication technology such as optic fiber cable, cell phone networks etc. The value of communication infrastructure construction surged by 45.5 per cent in 1999 (stabilized in 2000), reflecting the robust growth in IT stocks on US equity markets and the resultant investment into the roll-out of new technology.

The value of construction put into place in power distribution infrastructure displayed extremely erratic annual fluctuations during the mid-to-late 1990s, surging by almost 50 per cent in 1995, and almost 150 per cent in 1997, but collapsing by almost -50 per cent in 1994. Growth in distribution facilities tends to lag behind the commissioning of new generating capacity and reflects one-off investment to upgrade aging infrastructure and expand the network to meet changed demand conditions resulting from population settlement and regulatory reform. The table below shows the annual growth in the value of privately funded work put into place into the downstream infrastructure markets from 1994 to 2000.

Table: Growth in the value of construction put into place in key infrastructure markets during the mid-to-late 1990s.

y/e December	Percentage Communications	Percentage Electric Power	Percentage Distribution
1994	1.9	-9.1	-48.7
1995	7.3	-6.3	49.0
1996	4.4	-21.7	-12.2
1997	3.6	-4.1	147.4
1998	-0.9	8.2	-9.4
1999	45.5	21.5	-2.5
2000	0.0	46.5	-3.1
Ave Ann Growth			
%pa 1995 to 2000	9.3	7.7	13.2

Note: In constant 2005 prices deflated using the GDP deflator.

During the early 1990s, industry revenue is estimated by IBISWorld to have grown to a peak of around \$15.7 billion in 1992 before declining by almost -17 per cent over the next three years to an estimated cyclical trough at \$13.1 billion in calendar year 1996 (all values in constant 2005 prices). The contraction in demand for industry services during this period corresponded with the slump in electric power and distribution infrastructure construction, partially cushioned by solid growth in the construction of communication transmission lines.

Industry revenue is estimated to have strengthened by 3.1 per cent to \$13.5 billion in calendar year 1997 (in constant 2005 prices), reflecting the commensurate growth in the value of communications infrastructure construction (3.6 per cent), and the 147.4 per cent surge in the value of distribution infrastructure construction. Demand conditions are likely to have stabilized in the power and communications infrastructure market during 1998 ahead of the unprecedented surge of investment during 1999.

In calendar year 1999, the value of construction put into place in the private sector communications infrastructure market surged 45.5 per cent and underpinned a dramatic upswing in demand for power and communication transmission line construction services. Industry revenue is estimated by IBISWorld to have surged by 30.9 per cent to \$18.2 billion in calendar year 1999 (in constant 2005 prices), with demand also supported by the resurgent growth of 21.5 per cent in the value of electric power infrastructure construction. The jump in communication infrastructure construction activity corresponded with combined impact of the rapid growth in the value of IT and telecommunication stocks on US equity markets and investment into the spread of new technologies, notably the roll-out of optic fiber and coaxial cable networks by the local and long distance telcos.

The pace of industry revenue growth is estimated by IBISWorld to have continued its accelerated growth during calendar year 2000, climbing 21.4 per cent to a record \$22.1 billion (in constant 2005 prices), with industry value added growing by around one-quarter to an estimated \$15.7 billion as the buoyant demand conditions enabled firms to widen profit margins. Industry employment is estimated to have accelerated by around 21 per cent per annum over the two years to 170,000 persons in calendar year 2000, and the number of industry establishments is estimated to have jumped by 10 per cent per annum to 5,760 units in 2000. The robust growth conditions during 2000 were principally underpinned by the massive 46.5 per cent hike in the value of construction put into place in the electric power infrastructure market, while activity in the communications market remained stable following the surge in activity during the previous year.

The power and communications transmission line construction industry is understood to have recorded a period of unprecedented accelerated growth during the late 1990s and early 2000s, underpinned by several factors, including:

- the surge in investment into the IT equity market;
- the adoption of new communications technologies;
- the deregulation of the power generation and distribution markets; and
- the convergence of technologies, ownership, and construction activity across the communications and electric power markets.

Table: Revenue Growth

	Revenue \$ Million	Growth%
1993	15,800.0	N/A
1994	14,800.0	-6.3
1995	14,700.0	-0.7
1996	13,100.0	-10.9
1997	13,500.0	3.1
1998	13,900.0	3.0
1999	18,200.0	30.9
2000	22,100.0	21.4
2001	22,900.0	3.6
2002	21,994.0	-4.0
2003	18,700.0	-15.0

2004	16,800.0	-10.2
2005	16,200.0	-3.6

Table: Gross Product Growth

	Gross Product \$ Million	Growth%
1993	10,100.0	N/A
1994	9,250.0	-8.4
1995	9,100.0	-1.6
1996	8,200.0	-9.9
1997	8,870.0	8.2
1998	9,410.0	6.1
1999	12,750.0	35.5
2000	15,700.0	23.1
2001	15,850.0	1.0
2002	15,024.0	-5.2
2003	12,100.0	-19.5
2004	10,600.0	-12.4
2005	10,200.0	-3.8

KEY COMPETITORS

MAJOR PLAYERS

Table: Market Share

Major Player	Market Share Range
Quanta Services, Inc.	6.00% - 8.00% (2005)
MasTec, Inc.	5.00% - 6.00% (2005)
Dycom Industries, Inc.	4.00% - 5.00% (2005)
Henkels & McCoy, Inc.	4.00% - 4.50% (2005)
FirstEnergy Corp	2.50% - 3.50% (2005)
EMCOR Group, Inc	1.50% - 2.50% (2005)

PLAYER PERFORMANCE

[Quanta Services, Inc.](#)

Brand/Trading Name(s): Quanta Services, Market Share: 8.00%

The Texas-based Quanta Services company installs, repairs, and maintains electric transmission lines, cable TV and telephone lines across North America. Quanta telecommunications services fall into four categories: Outside plant; Inside networking; Central office; and Wireless. Within its electric power transmission operations, Quanta provides a complete range of design, construction, upgrade, repair and maintenance services and can install and maintain lines with capacities up to 765 kV.

.Quanta prides its reputation for speed, performance, geographic reach and comprehensive services and has developed strategic alliances with major utility companies (UtiliCorp owns 35 per cent of Quanta Services). Utility holding company Aquila, gave up a proxy fight for control of Quanta Services in 2002, and holds a less than 14 per cent stake, while private equity firm First Reserve, holds 37 per cent. Quanta currently has offices in 40 states providing the presence and capability to quickly, reliably and effectively complete turnkey projects nationwide. Between its initial public offering in February 1998 and December 31, 2002, Quanta acquired 88 specialty contracting businesses.

The firm's strategy over the outlook period is the vertical alignment of its operations into two industry specific groups: (1) Electric Power/Gas Group; and (2) Telecommunications/ Broadband Cable Group. This move is in response to Quanta's key customers focusing on their core business strategies and selling assets or closing non-core operations. Within the telecommunications services division, Quanta sees opportunities in the convergence of utility and telecommunications infrastructure to meet downstream demand such that electric power, voice, data and video flow over the same rights of way. Quanta also expects further growth in the telecommunications/broadband cable area with fiber to the premise initiatives.

In recent years group revenue has decreased from \$2,014.9 million in the financial year to December 2001, to \$1,750.7 million in FY2002, to \$1,642.9 in FY2003 down a further 1 per cent to \$1,626.5 million in FY2004. Net income was recorded as \$85.8 million in FY2001, but was recorded as a loss in the next three years (-\$619.5 million in FY2002, -\$35 million in FY2003 and -\$9.2 million in FY2004. Quanta employment has declined from 13,487 persons in 2001, to 10,820 persons in 2004. The company attributes this decline to a general downturn in capital

spending within the telecommunications and cable market (i.e., weak equity values, bankruptcies etc.). Decreases have been partially offset by revenues derived from acquisitions and growth in the electric power and gas market. In 2004, 65 per cent of total revenue was provided by electric power and gas network services (\$1,052.3 million), 17 per cent to the telecommunications and cable TV network services (\$273.3 million) leaving 18 per cent to other services. In 2004, Quanta electric power/gas results were buoyed by storm restoration work as a result of hurricanes.

In the year to December 2005, Quanta sales increased by 14.3 per cent to \$1,858.6 million with net income of \$29.6 million. Electric power and gas network services represented 67 per cent of sales (\$1,240.9 million), 15 per cent by telecommunications and cable network services (\$289.8 million), with other services representing 18 per cent of total revenue. Hurricane damage again buoyed results in the electric power and gas network services segment. Quanta also completed an African project involving the installation of a 132,000-volt circuit during 2005.

During 2006 Quanta will complete construction of the first six-bundle conductor transmission line for American Electric Power . The new line includes 333 towers and 3,420 miles of wire and stretches from a station at Oceana, West Virginia, to the Jacksons Ferry Station east of Wytheville, Virginia.

MasTec, Inc.

Market Share: 6.00%

MasTec claims to be the largest Hispanic-owned business in the US and is 42 per cent owned by the Mas family. The Miami-based firm was formed through the merger of Burnup & Sims (B&S) and Church & Tower (C&T) in 1994 and began a program of acquisitions and started building a presence in Latin America. Losses on several offshore operations in the late 1990s led the firm to refocus activities on the domestic US market. In 1999, MasTec formed two alliances with Skanska and Lucent to provide turnkey infrastructure services to the telecommunications and cable industries and in 2000 acquired GMR Telecom, a telecommunication systems engineering and design company. These acquisitions boosted MasTec's total assets by one-third.

MasTec provides telecommunications and energy infrastructure construction design and maintenance services to telephony vendors, wireless providers, cable TV operators and energy companies. It also designs communications infrastructures for Internet operators, builds cable TV networks, and installs LANs and WANs for business customers. Its customers include the leaders in these downstream markets (such as AT&T, Sprint, Enron and AOL Time Warner). MasTec also undertakes infrastructure services to telecommunications companies in Brazil through a joint venture and currently has operations spanning 200 locations across the US and Canada.

Mas Tec has recently recovered from a major downturns in business. Total revenue declined from \$1,222.6 million in the financial year to December 2001, to \$838.1 million in FY2002, before rebounding to \$870.2 million in FY2003 and \$913.8 million in FY2004. Net income has however been recorded as a loss of -\$92.4 million in FY2001, a loss of -\$128.8 million in FY2002, a loss of -\$52.3 million in FY2003 and a further loss of -\$49.4 million in FY2004. Employment has declined in recent years as well, down from 12,400 persons in 2000 to a trough of 7,260 persons in 2003, but recovered in 2004, rising by 6.7 per cent to 7,750 persons employed. Mastec is currently facing a federal lawsuit alleging the company failed to pay overtime and complaints of unfair dismissals, as a result of a complaint lodged by former employees in 2005, in Tampa, Florida.

Following the slump in activity in 2001, mainly associated with the integration of GMR Telecom and the slump in new business in the telecommunications market, MasTec refocused activities on its core operations, including: master service agreements with regional telecom carriers; broadband services; energy services; and intelligent traffic systems for state transportation departments. During 2002 demand conditions remained subdued amongst the leading communications and broadband customers, however, MasTec generated new business following the exit from the industry of many smaller and medium scale operators. The firm also benefited from work generated by the damage to electrical and communications infrastructure in areas of Louisiana affected by Hurricane Lili.

MasTec revenue from installation and construction services has remained relatively stable rising from \$272 million in FY2002, to \$267.4 million in FY2003 to \$277 million in FY2004. Revenue from master service and service agreements remains the main source of company revenue at \$636.6 million or 70 per cent in FY2004.

In the year to December 2005, MasTec recorded a -7.2 per cent drop in sales to \$848 million with another loss of -\$14.6 million. Master service and service agreements recording \$565 million while installation and construction revenue was recorded as \$283 million.

Dycom Industries, Inc.

Market Share: 5.00%

Florida-based Dycom Industries, Inc. focuses on providing design, construction and maintenance services for telecommunication companies and cable TV operators on coaxial, copper, and fiber-optic cable systems. Dycom services more than 100 customers through its 26 subsidiaries spanning the United States but its largest three client (BellSouth, Comcast and Qwest) account for around 40 per cent of group revenue.

Dycom Industries started installing fiber-optic cable for long-distance carriers in the 1980s and grew through acquiring telecommunication infrastructure and construction services companies across the US including: Globe Communications (1992); Communications Construction Group (1997); Installation Technicians and Cable Com. (1998); and Point Communications and Niels Fugal Sons (2000). In February 2002, Dycom acquired Arguss Communications Inc. (which had annual sales revenue of \$270 million in 2000). Arguss designed, built, and repaired telecommunications and cable systems, aerial, underground, and wireless infrastructure for telecom providers including: AT&T Broadband and Charter Communications.

In November 2003, Dycom acquired First South Utility Construction Inc. and also announced a merger agreement with UtiliQuest for \$120 million allowing UtiliQuest to survive the merger as a wholly owned subsidiary of Dycom. In 2005 Dycom agreed to purchase assets of Orius Corp. in an agreement which required Orius Corp. to register for Chapter 11 bankruptcy. However, Orius assets were later auctioned to a higher bidder and Dycom received a breakup fee.

In the financial year to July 2002 Dycom recorded total revenue of \$624 million with NPAT recorded as a loss of -\$123 million. Included in the 2002 net loss was a substantial allowance related to the write-down of goodwill and other intangible assets resulting from telecommunication customer financial difficulties and bankruptcies. In FY2003 revenue slumped to \$618.2 million (NPAT \$17.1 million), but climbed to \$872.7 million in FY2004 (NPAT \$58.6 million) and increased a further 13.1 per cent to a record \$986.6 million (NPAT \$24.3 million) in the year to July 2005.

In the financial year to July 2005, Dycom attributed 74.3 per cent of total sales to telecommunications, 21.6 per cent to utility line locating and 4.1 per cent from electrical and other construction. Electrical construction revenue increased 17 per cent from \$34.6 million in FY2004 to \$40.5 million in FY2005. Dycom attributed the increased electrical construction revenue to new contracts that were in the start-up phase in fiscal 2004, however the increases were offset by completion of a contract in the Southeastern United States during fiscal 2005.

The company employment has varied from 7,200 persons in 2000 to a low of 5,259 persons in 2003 to 8,228 persons in 2005.

Henkels & McCoy, Inc.

Market Share: 4.50%

Henkels & McCoy is an employee and family owned company based at Blue Bell, PA. The firm installs electrical transmission and distribution systems, fiber optic cable, communications towers and gas pipelines throughout the US and internationally (clients include AT&T). The firm focuses on supplying maintenance services to utilities and the telecommunications industry.

In late 2001, Henkels & McCoy announced that, in partnership with Duke Energy, it had been awarded a major contract with Bonneville Power Administration to construct a new 500 kV power transmission system segments and upgrade some existing transmission lines, totaling approximately 155 miles. Later phases of the project have the potential to bring the total amount of transmission system constructed to approximately 800 miles.

Henkels & McCoy annual revenue has declined from \$748 million in the financial year to September 2000, to \$675 million in FY2001, to \$604 million in FY2002, to \$516 million in FY2003. IBISWorld estimates Henkels & McCoy sales in the year ending September 2004 increased to approximately \$658 million, rising again in FY2005 to \$702 million as a result of general industry recovery and significant repair contracts associated with hurricanes in 2004 and 2005.

FirstEnergy Corp

Brand/Trading Name(s): MYR Group Inc, Market Share: 3.50%

MYR Group is a subsidiary of the Ohio electric utility FirstEnergy and is based in Illinois. MYR operates in 20 states across America and provides infrastructure and industrial construction maintenance on a wide range of projects, including: industrial and commercial wiring; power transmission line construction; traffic and light rail signalization; telecommunication and fiber optic installation; mechanical construction; and gas line installation and maintenance.

MYR Group construct and maintain power lines and substations for utility, industrial, mining, institutional and government facilities and have constructed thousands of miles of transmission and distribution lines of voltages up to 765kV. The company provides a wide range of telecommunications and teledata installation services, constructing PCS and cellular towers for the wireless communications market along with underground and overhead copper and fiber optic cable installation. Along with the capacities to construct transmission towers and distribution lines, MYR Group has expertise in the provision of electrical construction in traffic and light rail

signalization (e.g. ramp metering, signalized intersections and fiber optic interconnections for traffic management systems).

MYR Group subsidiaries operating in this industry include: ComTel Technology, Inc. (telecommunications); D.W. Close Company, Inc. (electrical construction, power lines, telecommunications, traffic signalization); Great Southwestern Construction, Inc. (power line construction); Harlan Electric Company (power lines, telecommunications, traffic signals); Hawkeye Construction, Inc. (power lines, telecommunications, traffic signals); MYRcom, Inc. (telecommunications); MYRpower, Inc. (commercial/industrial electrical, mechanical construction); The L.E. Myers Co. (gas installation, power lines, telecommunications, traffic signals); and Sturgeon Electric Company, Inc. (electrical construction, gas installation, power lines, telecommunications, traffic signals).

MYR revenue in the financial year to December 2004 was \$320.4 million down 27 per cent from \$439 million in FY2003, from \$521.2 million in FY2002, from a peak of \$682.4 million in FY2001, from 437.7 million in FY2000, \$477.3 million in FY1999 and \$459.3 million in FY1998. IBISWorld estimates company revenue to recover to \$400 million in FY2005.

Recent contracts include PacificCorp's contract to upgrade the transmission and distribution system throughout metropolitan Salt Lake City, Utah. PacificCorp awarded the contract to a consortium of Kenny Construction, Sargent & Lundy and MYR subsidiary Sturgeon Electric Co. in 2004.

EMCOR Group, Inc

Market Share: 2.50%

EMCOR designs, constructs, operates, and maintains mechanical and electrical systems for power generation and distribution, lighting, voice and data communication, plumbing, heating, ventilation, and air-conditioning sectors. EMCOR has offices in 42 states and the District of Columbia in the US, eight provinces in Canada, and 12 locations in the UK. It also operates two joint ventures in the United Arab Emirates. Revenue is principally gained in the United States (80 per cent).

EMCOR's forerunner, Jamaica Water Supply Co., was incorporated in 1887 to supply water to some residents of Queens and Nassau Counties in New York. The company expanded into electrical and mechanical construction and information technology before a period of trading under Chapter 11 in 1994. The company reorganized and took the name EMCOR in 1994, later selling Jamaica Water Supply. In 2002 EMCOR bought 19 subsidiaries from its financially troubled rival, Comfort Systems USA and has subsequently acquired further facilities service companies.

Annual revenue has risen from \$3,419.9 million in calendar year 2001, to \$3,968.1 in FY2002, to \$4,534.6 million in FY2003 to \$4,747.9 million in FY2004 down -0.7 per cent to \$4,714.5 million in FY2005. US electrical construction and facilities (involving systems for generation and distribution of electrical power, lighting systems, low-voltage systems such as fire alarm, security, communications and process control systems and voice and data systems) accounted for 26 per cent of total sales in 2005 or \$1,224.6 million (US mechanical construction and facilities 37 per cent (\$1,718.5 million), US facilities 16 per cent, UK operations 14 per cent, Canadian operations 7 per cent).

Recent electrical transmission line construction contracts include the Great Lakes Power Limited contract in Ontario in which EMCOR will remove over 100 miles of existing 115 KV transmission lines and upgrade the lines to higher voltage 230 KV (due for completion 2005).

Other Players

Other significant regional players in this industry include:

- InfrastruX Group Inc (subsidiary of power giant Puget Energy Inc.) - service providers include Chapman Construction Company, Flowers Construction Company, Gill Electric Service Ltd. InterCon Construction, Lineal Industries, Skibeck Pipeline Company, Texas Electric Utility Construction, Trafford Corporation, UTILX Corporations and following the 2003 acquisition, B& H Maintenance and Construction. Puget Energy reduced investment in InfrastruX in 2004 and will monetize its interests in the company in 2005 following a strategic review.
- Miller Electric Construction Company Inc.
- Davis H Elliot Company Inc.
- ARB Inc.

Former Major Player - Orius Corp.

The Florida-based Orius Corp. was established in 1997. The company provided transmission line construction and on-premise communications wiring for businesses, government agencies, and utilities. Orius activities in this industry included the deployment and maintenance of: cables (aerial/underground); coaxial splicing; complete rebuilds; conduit & manholes; copper splicing; directional boring; fiber optic plowing; fiber placement; fiber splicing; infrastructure support; joint trench installation; pole-line installation; pre/post MDU wiring; railroad plowing; site preparation; standard installation and reconnect; and upgrade or retrofit.

Orius experienced a period of accelerated growth from its 1997 foundation and by 2000 operated through subsidiaries in 48 states. Orius revenue totaled \$735.1 million in the year ending December 2001 with net income of \$9.6 million. However, with the downturn in the telecommunications industry Orius debt level became a burden and in November 2002, Orius Corp. filed for Chapter 11 bankruptcy protection with the aim to reduce debt from \$500 million to \$100 million. Only 59 days after filing for Chapter 11 bankruptcy protection the company gained full court approval for its reorganization program which involved an 80 percent reduction of Orius' debt. Orius emerged from Chapter 11 in early 2003 with investment firm Willis Stein & Partners owning a majority stake in the company. In the financial year to December 2003, total revenue was recorded as \$200 million (down from \$718 million in FY2002).

In December 2005, Orius again filed for Chapter 11 protection (with the intention of liquidating assets) and agreed to sell some of the company's assets to Dycom. Orius assets were purchased by a higher bidder including Schatz Underground who will continue business at former Orius locations in Missouri and Nevada. Further Orius assets were auctioned in March 2006 completing liquidation of the company.

Bracknell Corporation - Past major player

The Minneapolis-based Bracknell Corporation's subsidiary filed for Adesta Communications filed for bankruptcy protection in 2001 and the company's directors and officers resigned. The sharp downturn of the telecommunications industry in 2001 resulted in Bracknell rapidly winding down operations which escalated the difficulties the firm was encountering meeting loan commitments.

Bracknell Corporation grew at a robust pace in the late 1990s with acquisitions lifting group total assets from \$133.6 million in 1998 to \$532.4 million in 2000. Bracknell's revenue rose to a record \$843.7 million in the year to October 2000, up 166 per cent on revenue of \$316.4 million in 1999 and up 185 per cent on the 1998 revenue of \$295.9 million. Group employment totaled 5500 persons in 1999.

In 2000, Bracknell acquired the locally-based systems integrator Able Telcom in order to undertake WorldCom's network buildout over the ensuing six years but the slump in WorldCom fortunes since 2001 impacted severely on Bracknell's bottom line. Bracknell had served a range of markets, including: telecommunications (development of wireless and wireline networks and installation of switching sites); energy (facility management, lighting, and power distribution services); gaming (security and surveillance design); and automotive (facility management services).

KEY FACTORS

KEY SENSITIVITIES

The key sensitivities affecting the performance of the **Power and Communication Transmission Line Construction in the US** industry include:

Gross Government Fixed Investment - State and Local

State and local public sector funding generates a substantial share of revenue in the electricity transmission segment of this industry.

Industry Systems and Technology - Telecommunication Services

Description: The systems and technology utilized by the industry.

Technological advancements and the adoption of these new technologies in the US economy has stimulated greater demand for industry services.

Legislative Compliance Requirements - Power and Communication Transmission Line Construction

The deregulation of the telecommunication and broadcasting industries during the past decade has opened the way for the entry of new competitors into these markets and the expansion of operations of existing players. This has in turn stimulated increased demand for the transmission line and cable laying activities of this industry. The incentives for investment into new "clean" power generating capacity contained in the 2005 Energy Bill is expected to stimulate improved demand for electricity transmission line construction during the latter half of the outlook period.

Population Growth - USA

Description: The level of population growth in the US

Changes in the size of the population due to immigration etc. and to the distribution due to internal migration can impact positively on demand for industry services. In addition, the distribution of the population across the US and the relative concentration in major metropolitan areas is a key determinant of the distribution of demand for industry services.

Value of Construction Put in Place - Private and Public - Utilities

Trends in private sector capital expenditure influence funding of new electric and communication infrastructure directly feeds into investment into transmission line projects.

KEY SUCCESS FACTORS

- Ability to compete on tender

Contracts are generally open to tender and participants must be capable of competing in this environment while ensuring they maintain an adequate cashflow and profit margins.

- Having a good reputation

Reputation for quality of workmanship, technical capabilities, and timeliness is essential for securing ongoing contracts and referrals.

- Ability to quickly adopt new technology

Technological advancements impact quite rapidly on this industry and participants must be well positioned to understand and adopt emerging technologies

- Ability to provide goods/services in diverse locations

The capacity to service a wider geographic market or alternative market segments improves participants' opportunities of stabilizing cash flow.

OUTLOOK

Table: Revenue Growth

	Revenue \$ Million	Growth%
2005	16,200.0	-3.6
2006	16,500.0	1.9
2007	17,500.0	6.1
2008	18,800.0	7.4
2009	19,750.0	5.1
2010	20,725.0	4.9

The outlook for the power and communications transmission line construction industry is for a return to strong cyclical growth over the outlook period to December 2010, underpinned principally by the projected recovery in investment into communications technology and the accompanying installation of transmission infrastructure, and to a lesser extent by the flow through of recent legislative measures aimed at boosting investment into "clean" energy generation and measures to improve the reliability of electricity transmission grid. Divergent trends in the downstream communications and electric power construction markets early in the outlook period will contain the pace of expansion, but IBISWorld forecasts industry revenue growth to strengthen from 2007 onwards to average 5 per cent per annum over the five years to December 2010, exceeding the projected pace of US GDP growth (2.9 per cent per annum).

Despite this solid growth profile, the annual level of industry revenue is forecast by IBISWorld to average \$18.7 billion per annum over the next five years to 2010, or around -3.5 per cent below the estimated average of \$19.3 billion per annum for the previous five years to December 2005 (all values in constant 2005 prices).

Beyond the trends in construction activity in the downstream electric power and communications infrastructure markets, several factors are likely to buoy industry activity over the outlook period, these include:

- the continued convergence of downstream markets;
- the beneficial impact on construction investment stimulated by deregulation in the downstream markets;
- the trend towards the outsourcing of non-core activities (i.e., construction and maintenance) by electric power suppliers; and
- the substantial lift in the bandwidth of the existing telephony network needed to meet the accelerated growth in demand telecommunication-based services.

Investment into the downstream communications infrastructure market is projected to steadily strengthen over the course of the outlook period associated with the turnaround in investor confidence in ITC stocks on equity markets, and the growth in demand for new communications technology. Solid domestic demand conditions during 2006 will help drive the takeup of new technology and herald a return to strong growth in infrastructure spending for the remainder of the outlook period as the leading players embark on major new network expansion programs. The value of construction in the communication infrastructure market is projected by IBISWorld to grow by an average 8 per cent per annum over the five years to December 2010. Cable and DSL residential broadband subscriptions are projected to grow at a compound rate of around 40 to 50 per cent per annum through to 2010, requiring telcos to invest heavily into increased bandwidth to facilitate video, voice and data transmission. Contractors specializing in communication

transmission line installation and repair are expected to record accelerated revenue growth over the outlook period, albeit from its current low base.

The deregulated electric power market has confronted many structural difficulties in recent years leading to several regional utility companies entering bankruptcy and delays in the much of the planned additional capacity. Independent "merchant" developers are currently planning for the addition of around 300,000 Mw to 400,000 Mw of new generating capacity over the coming decade, but IBISWorld projects relatively modest growth in the construction of electricity generating capacity, averaging around 20,000 to 25,000 Mw per annum over the outlook period to 2010. The capacity utilization rates for electric power plants declined from a peak of 96 per cent in 2000 to around 85 per cent in 2005 and is forecast by IBISWorld to gradually climb during the course of the outlook period, due to natural increase in consumption (i.e., population growth and industrial development), and as high CO2 emission plants are removed from the grid. IBISWorld forecast the value of construction of electric power infrastructure to grow by an average 3 per cent per annum over the outlook period to December 2010. The value of construction put into place on power distribution infrastructure is projected to display less volatile growth during the outlook period and average growth of around 2.0 per cent per annum over the outlook period.

The main impetus for expansion in the value of electric power infrastructure is expected to come from the recent passage of the Energy Policy Act (2005) which is aimed at supporting development of "clean" energy alternatives and encourages utility companies to invest into nuclear power plants, clean coal technology and nonfossil energies (e.g., wind power), providing tax breaks and loan guarantees on suitable projects. The Energy Bill also requires utilities to comply with federal reliability standards on the electricity grid, rather than self regulation, with the view to avoiding a repetition of the blackout in the Northeast USA during the summer of 2003. New opportunities are also likely to emerge in response to the push for reduction in CO2 emissions and the rising costs of operating natural gas fired power plants. There is expected to be a push to redevelop existing coal-fired generating capacity (installing new scrubber technology), or build new efficient plants to reduce their environmental impact and at the same time boost output, which is expected to stimulate demand for new transmission capacity. The table below shows the projected growth in the value of construction put into place in the communications, electric power and distribution infrastructure markets through to calendar year 2010.

Table: Forecast growth in key downstream construction markets to 2010.

Calendar year	Billion Dollars Communications	Billion Dollars	Billion Dollars Electric Power	Billion Dollars	Billion Dollars Distribution	Billion Dollars
2002	19.79	N/C	30.15	N/C	1.45	N/C
2003	13.41	-32.2%	30.07	-0.3%	2.09	44.1%
2004	13.75	2.5%	24.46	-18.7%	1.63	-22.0%
2005	14.18	3.1%	22.78	-6.9%	1.69	3.7%
2006F	15.64	10.3%	21.69	-4.8%	1.75	3.6%
2007F	17.20	10.0%	22.61	4.2%	1.75	0.0%
2008F	18.93	10.1%	23.74	5.0%	1.78	1.7%
2009F	19.89	5.1%	24.97	5.2%	1.81	1.7%
2010F	20.86	4.9%	26.46	6.0%	1.85	2.2%
Ave Ann Gth		N/C		N/C		N/C
%pa 2005 to	8.0	N/C	3.0	N/C	1.8	N/C

2010

Note: Value of construction put into place in constant 2005 prices. Forecasts by IBISWorld

The demand for power and communications transmission line construction services is forecast to remain close to its current cyclical trough during the short term, climbing only marginally to \$16.50 billion in calendar year 2006 (up 1.9 per cent in constant 2005 prices). This reflects a balanced outcome corresponding with the moderate divergent trends in the downstream construction markets. The annual value of communications infrastructure construction is projected to grow by 10 per cent in 2006, and offset the projected decline by -4.8 per cent in the annual value of electric power infrastructure construction. The short term strengthening in cyclical growth in the communications infrastructure market reflects the return of pent-up investment into IT and telecommunications technology following the slump in investment in the early 2000s. Conversely, the value of construction put into place in the electric power infrastructure market is forecast to continue its cyclical contraction over the short term, due to the scaling back of investment following the massive boost to national generating capacity in the early 2000s, the long lead times for infrastructure planning, and the constraints on investment stemming from the difficulties associated with market deregulation.

The projected divergent growth in the downstream infrastructure markets early in the outlook period is likely to result in a swing in the focus of industry contractors towards the communications market. Despite this scaling back of investment into the electric power infrastructure market, IBISWorld projects that new opportunities for transmission line construction and cable laying will emerge from the greater competition for commercial and household customers across state boundaries following the recent market deregulation.

The pace of industry revenue growth is forecast to strengthen from 2007 onwards, reflecting continued accelerated cyclical growth in investment into the communications infrastructure market, and the moderate cyclical turnaround in investment into the electric power construction market, associated with the first stages of the flow through of federal funding to support "clean" energy and the improvements to the national electric power grid. The value of communications infrastructure construction is projected to grow by around 10 per cent per annum in 2007 and 2008, and the value of electric power infrastructure construction is projected record a solid cyclical upswing of 4.3 per cent in 2007, and 5.0 per cent in 2008, underpinning a return to robust industry demand conditions. Industry revenue is forecast to strengthen by 6.1 per cent to \$17.5 billion in 2007, and by a further 7.4 per cent to \$18.80 billion in calendar year 2008 (in constant 2005 prices), supporting employment growth of around 5 per cent per annum to 150,000 persons in approximately 5,300 establishments.

During the latter years of the outlook period, continued synchronized cyclical growth of around 5 per cent per annum in the key downstream construction markets is forecast by IBISWorld to see commensurate growth in industry revenue over the last two years of the outlook period to total \$20.725 billion in calendar year 2010, but remain approximately -5 to -6 per cent below the level recorded in the 2002 Economic Census (in constant 2005 prices). Industry employment is forecast by IBISWorld to grow at a slower pace than industry revenue over the outlook period, averaging 3.5 per cent per annum, and climbing to approximately 160,000 persons in 5,500 establishments by December 2010. This slower pace of employment growth reflects the impact of improving construction technologies, the more efficient use of labor input on long term maintenance contracts, and increased use of subcontracted labor.

Industry Value Added Outlook

Industry value added (IVA) is forecast by IBISWorld to grow at a faster pace than industry revenue over the outlook period to 2010, climbing by an average 6.1 per cent per annum, and increasing as a share of revenue from an estimated 64 per cent in 2005 (and a cyclical trough of

around 63.5 per cent in 2006), to around 66 per cent or \$13.7 billion by calendar year 2010 (in constant 2005 prices). The marginally faster pace of industry value added growth over the outlook period, reflects some improvement in profit margins (mainly for contractors servicing the communications infrastructure market).

The gross operating surplus component of IVA is forecast by IBISWorld to climb by an average 10 per cent per annum over the outlook period to 2010, while the employee compensation component of IVA is forecast by IBISWorld to grow by an average 4 per cent per annum, reflecting the moderate growth in industry employment (3.5 per cent per annum), and some growth in unit labor rates.