



# NEWSLETTER

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## BEIJING CONGRESS 2002, OCTOBER 23–27

Invitations with registration forms were mailed recently. As you may need an entry visa for China, it is strongly recommended to register by the middle of July. The ICF secretariat can arrange for the required invitation letter from China for you to apply for the visa at the Chinese Embassy in your country.

## TOPICS AT THE CONGRESS

We will have four sessions during our Congress. Working Groups are established and try to locate expert speakers for each session.

- (1) China – after WTO:  
This session will have two parts:  
a) Chinese economy in general  
b) the cable industry today and tomorrow.
- (2) International Standardization:  
Sub-titled: Chances and risks for the cable industry  
We will focus on the values and cost of standardization. Also, we will have a view on this issue from a Chinese expert.
- (3) Environmental Issue:  
This session will have also two parts: one is focusing on the Aspects of Legislation, Risk Assessment and how to handle liabilities.  
The other part will be on Green Cables, Life Cycle Assessment, Recycling and Decomposition of Cables.
- (4) Industry Structure and Business Models:  
First, we will listen to a case study in the steel industry. Then, focusing on our industry; historical and statistical analysis of the last 10–20 years and several different type of business models will be presented which the cable industry may apply. Finally, Human Relations and Resources in our industry are on the program.

## UBIQUITOUS SOCIETY?

Have you ever heard the word “Ubiquitous Society” or “Ubiquitous Network”? Ubiquitous means “To be everywhere at once”, in other words, we are now going to a Non PC era which means that you will be surrounded by micro computers everywhere in your home and office. Is that too much? For cable industry, it will require more development of speciality wires and cables.

Optical Wave



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## Long Term Trends in Wire & Cable

(by Paul Dewison, Metalica)

With the collapse in fibre optic cable and a more modest retreat in metallic cable business in the latter half of 2001, cabled makers may wish to reassess just how they see this market. Clearly, the common assumption that the cable market would increase in volume slowly but reliably each year has been shown not to be valid. Perhaps more important, the view that information-related business should offer better returns than energy cable has also been challenged (see *News in Brief on Pirelli*).

So, how do the prospects for the cable industry look? While not giving all the answers, history has a few important lessons to offer. Industry change is far from being a smooth process but, still, long-term patterns are clearly evident:

- 1) Market volume growth is stabilising at 3.5–4.0% p.a.
- 2) Constant evolution of the product/application matrix.
- 3) Shift in the market away from the mature economies.
- 4) Shift of cable output to the emerging markets.
- 5) The erosion of fabricator margins.
- 6) A growing role for international cable companies.

In this article we take a look at the market statistics dating back to 1950 in order to identify broad trends in the rate of growth over time, the change in market character by product and geography and the implications for the location of cable manufacturing (point 1 to 4). Parallel changes in cabled maker margins and in the company structure of the cable industry (point 5 and 6) are touched upon only briefly.

First: the rate of growth of the cable market. Between 1950 and 2000, our figures show an impressive increase in market size, of over ten million conductor tonnes weight equivalent (including fibre optic cable) from just 1.7 million tonnes to 12.3 million tonnes, before falling back slightly in 2001. In percentage terms, growth was strongest in the early years of the period. In the 1950s, the cable market grew in volume at a trend rate of 5.2% p.a., rising even higher to 5.4% p.a. in the 1960s. The two decades saw what in retrospect appears to have been the heyday of the cable industry. Cable, through its contribution to the power and telecom infrastructure, the growth of heavy

industry and deepening penetration of electrification within buildings and OEM equipment, was a crucial component in the post-War development of today's mature economies of Western Europe, North America and Japan.

From the early 1970s the outlook for the cable industry began to look very different. Cable, like other industries, suffered from the Oil Crisis and subsequent sluggish economic growth. More than this, however, the market

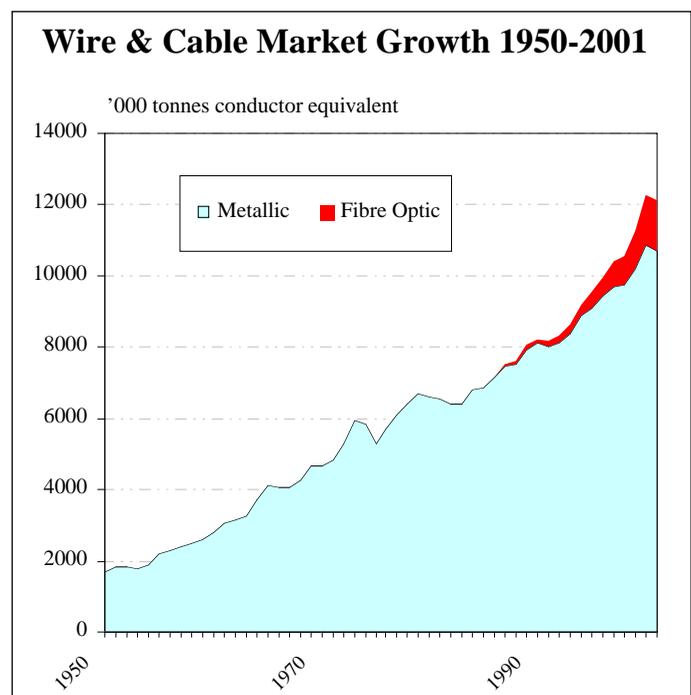


Chart 1

dynamics that stimulated such rapid growth in cable in the main markets of Western Europe, the United States and to a lesser extent Japan began to run out of steam as these economies approached maturity. While less mature markets demonstrated very strong percentage growth, the fact that they were still quite small kept down the increment to overall market volume.

As the 1970s progressed, and into the 1980s, three other factors came into play to reduce overall cable market growth. Downsizing of components in OEM equipment, structural inventory reduction and the collapse of the Former Soviet Union all dampened market growth. From the 1950s and 1960s, when trend market growth exceeded 5% p.a., volume increase fell to 3.4% p.a. in the 1970s and just 2.6% p.a. in the 1980s. Over the period, the rate of market growth was not only falling in percentage terms, the annual volume increment was also sliding, from an

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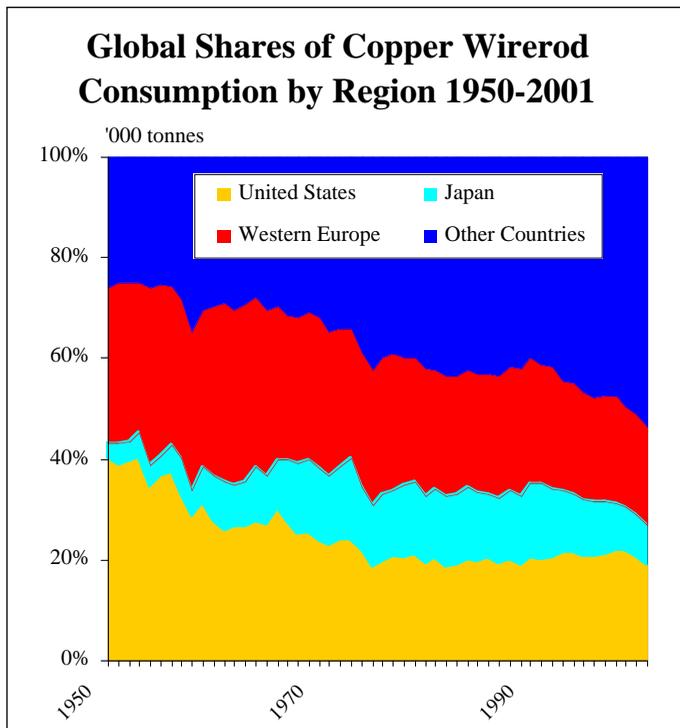


Chart 2

average of 187,000 tonnes per annum in the 1960s to 161,000 tonnes per annum in the 1980s.

At the beginning of the 1990s, the cable industry looked like a mature industry, destined from growth rates well below that of the global economy. The strong and sustained rebound in market growth (in volume terms) from 1993, therefore, may have come as something of a pleasant surprise. The change in growth rate was caused by a number of coincident factors. Firstly, there was a reduced impact of some of the factors that had dampened market growth in the recent past. By 1993, the rate of decline in the Former Soviet Union market had lessened and structural inventory reduction and downsizing were less important. Secondly, on the positive side, volume growth in the faster growing emerging markets came to provide a major contribution towards global market size and the information revolution created mushrooming demand for both fibre optic and copper data cables. In the 1990s as a whole, we calculate the market volume growth trend at 4.2% p.a. (based on a conversion factor of fibre optic to metallic equivalent of seventy fibre kilometres to one tonne of conductor). The annual increment to market size, using this factor, averaged 408,000 tonnes per annum in the 1990s, nearly treble that of the previous decade. Approaching half of the market's net growth came from

fibre optic and copper data cable, while development outside Western Europe, the United States and Japan provided 61% of the volume increment.

It is clear that the accelerating rate of change in the cable market in the 1990s created a business that was fundamentally different in structure than it had been in earlier decades. Despite the relative decline of copper telecom cable, the information cables group share of the market increased in volume terms from 16% in 1990 to 24% in 2000 (in value its share was rather higher). The geographical shift towards new markets had also created a quite different locational structure of demand. Whereas Western Europe, the United States and Japan combined had accounted for as much as three quarters of the cable market in the 1950s and 1960s, this share had fallen to around 60% in 1990 and to little more than 50% in 2000.

Along with the shift in the geography of the cable market went some important changes in product mix. As cable markets develop over time, there are predictable changes in structure. A useful tool for mapping these changes is the product/application matrix, as used in the Metalica analysis of the Americas and Western Europe wire and cable markets for the ICF in 2000 and 2001. In any country or regional market, over time we may expect the cable applications mix to change. Infrastructure-related demand tends to be proportionately greatest in the early stages of economic development, while the process of industrialisation in the early and middle stages of economic development tends to be associated with rapid growth in the OEM-related markets. With greater maturity, wealth created mainly in the service sector tends to be associated with a cable market biased towards the premise market, comprising of the energy and information structures within buildings. All else being equal, the shift in applications bias should be accurately reflected in the cable market product mix. In the early stages of economic development, utility power and external information cables may be expected to be the most prominent market drivers. With greater maturity, OEM products such as winding wire, automotive and equipment wire should become more important while, in mature markets, building wire and data cable may assume a greater importance.

Unfortunately, the data is simply not available to create accurate product/application matrices going back a long way over time. It is possible, however, to gain a reasonable impression of the long-term development of today's mature markets by looking simply at products.



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## Product Apportionment in the Major Markets 1970-2000

	United States				Japan				Wesetern Europe			
	1970	1980	1990	2000	1970	1980	1990	2000	1970	1980	1990	2000
<b>'000 tonnes Conductor Equivalent</b>												
Power Cable	304	299	452	549	195	229	316	280	558	628	771	778
LV Energy Cable	332	407	577	966	244	282	444	321	442	495	676	765
Telecom/Data Cable	335	391	353	1019	96	121	132	285	248	313	358	522
Winding Wire	230	219	258	367	147	220	238	193	277	306	277	378
<b>Total</b>	<b>1202</b>	<b>1317</b>	<b>1640</b>	<b>2901</b>	<b>682</b>	<b>853</b>	<b>1130</b>	<b>1079</b>	<b>1524</b>	<b>1743</b>	<b>2082</b>	<b>2443</b>
<b>% Share</b>												
Power Cable	25%	23%	28%	19%	29%	27%	28%	26%	37%	36%	37%	32%
LV Energy Cable	28%	31%	35%	33%	36%	33%	39%	30%	29%	28%	32%	31%
Telecom/Data Cable	28%	30%	22%	35%	14%	14%	12%	26%	16%	18%	17%	21%
Winding Wire	19%	17%	16%	13%	22%	26%	21%	18%	18%	18%	13%	15%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Decade % Growth</b>												
Power Cable	-	-2%	51%	21%	-	18%	38%	-11%	-	13%	23%	1%
LV Energy Cable	-	23%	42%	67%	-	16%	57%	-28%	-	12%	36%	13%
Telecom/Data Cable	-	17%	-10%	189%	-	26%	9%	116%	-	26%	14%	46%
Winding Wire	-	-5%	18%	42%	-	50%	8%	-19%	-	10%	-9%	36%
<b>Total</b>	-	<b>10%</b>	<b>25%</b>	<b>77%</b>	-	<b>25%</b>	<b>32%</b>	<b>-5%</b>	-	<b>14%</b>	<b>19%</b>	<b>17%</b>

Note: Conductor equivalent calculated using the conversion factor for fibre optic cable 1 tonne conductor = 70 fkm.

Table 1

In the table 1 we can see that in Western Europe, the United States and Japan power cable has under-performed the cable market overall. For the three markets combined, the power cable share fell from 31% of volume in 1970 to 25% in 2000. The decline reflected relatively sluggish growth both in the utility infrastructure segment and premise demand for industrial power cable, created largely by heavy industry. The product mix figures for today's mature markets also show a declining importance of winding wire, as the OEM sector becomes relatively less important as economies mature. Figures for low voltage energy cable are more ambiguous, as they include major premise and OEM components. Despite the shift of OEM business away from the mature markets, however, the share of low voltage energy cable has held up quite well in the product mix of both Western Europe and the United States, with premise applications accounting for a growing proportion of the total. The figures for Japan show a rather different story, the relatively poor low voltage energy sector performance in 2000 reflecting an extremely weak construction industry and a major structural shift of OEM business offshore.

By far the greatest change in product mix in the cable markets of Western Europe, the United States and Japan is evident in the information sector. In prior decades, the in-

formation-related business was mainly an infrastructure business. As may be expected, the share of information cable fell in these maturing markets, from 20% in 1970 to 17% in 1990. In the 1990s, however, there was a sharp reversal in trend, leading to a 28% information segment share in these three markets in 2000. Part of the reason for this change is the rapid growth of information cable as a premise market, a shift that may have been expected on structural grounds. More important, however, was the revival of information cable as an infrastructure market with the penetration of cheap

fibre optic systems. Indeed, technological change created the potential for the multiple overlay of infrastructure networks that never before would have been commercially viable.

History will probably show the technology driven change in cable's product/application matrix through fibre optic cables to have been unique. On the power network side, the possible commercial use of superconductors and of distributive power generation could become important, but not on the same scale. Bar major technological change, we consider the "S-curve" of economic development as a good framework in which to assess the development of country and regional cable markets over time. In the analysis of trends in today's mature cable markets above, we pointed to changes in cable market growth and in cable market structure over time. This relates quite clearly to shifts in the structure of economic development. Before economic take off the cable industry, along with the economy overall, tends to be small and slow growing. Then comes a phase of rapid economic development in which cable plays a major part, first in infrastructure, then in manufacturing. With maturity, the infrastructure networks are largely in place and manufacturing becomes less important within the overall cable market profile; premise markets take over as the focus of development within a slower growth market context.

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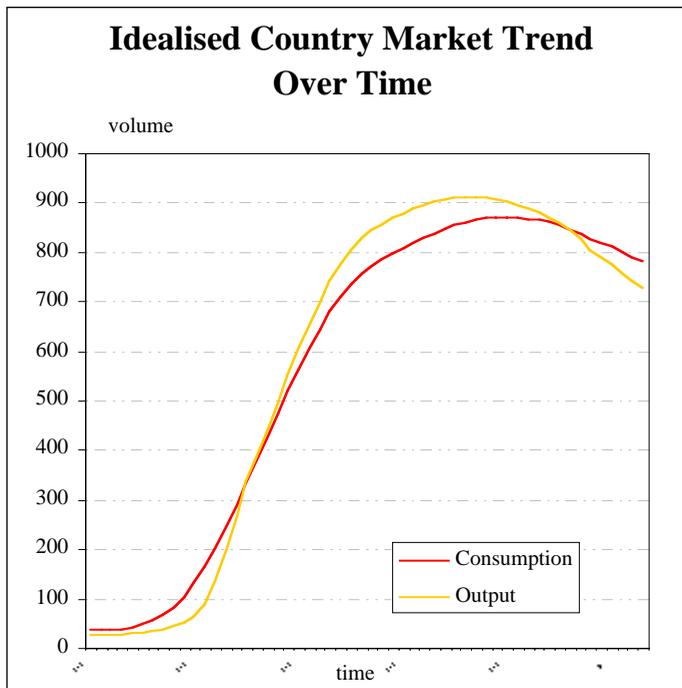


Chart 3

This idealised pattern of market development may be characterised by an “S” shaped curve, showing cable market volume over time.

Although accurate up to a point, this description of cable market development misses one major element, this being trade. Today, nearly 20% of all cable is traded internationally. Like the market itself, the volume and direction of trade over time has a structural element to it. In the early stages of economic development, countries rarely have a strong cable industry, so they tend to rely on imports. In the period of rapid growth that follows, countries often remain importers, as the cable industry fails to keep pace with the growing market. With a large domestic market, however, domestic manufacturing of a relatively simple industrial product like wire and cable will almost inevitably catch up with demand and, in many cases, grow far beyond it to create a large surplus for export. Countries may hold on to an export market share well into economic maturity; this is true of both Western Europe and Japan. At some point, however, we may expect the mature suppliers to lose out in price competition with supply from emerging markets, leading them to become net importers. The trend towards this is clearly visible in all three of the large mature markets for cable.

Looking at the line graphs of copper wirerod and insulated cable market development for Western Europe, the

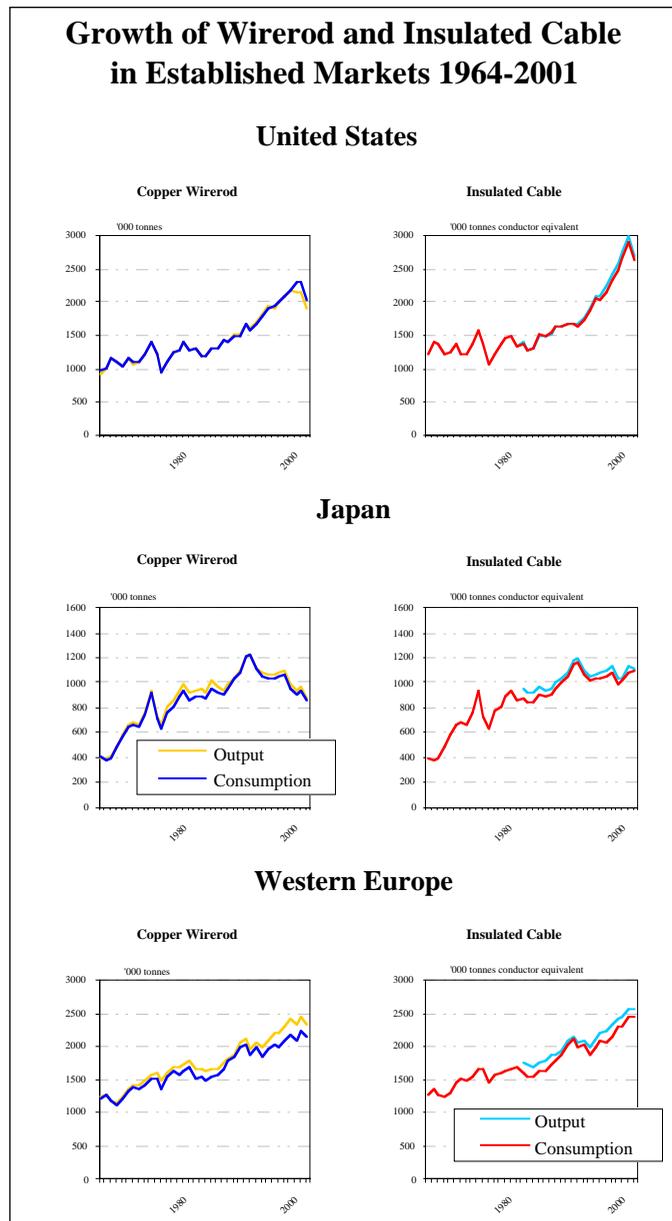


Chart 4

United States and Japan, it is possible to see some of the “S-curve” elements. Data for Japan clearly demonstrates the sharp ascending leg of the “S-curve” in the 1960s and 1970s, followed by slackening growth in output and the emergence of net exports in the 1980s, then a peaking in market volume and a reduced scale of net exports in the 1990s. For Western Europe, the period of most rapid market growth was already over by the mid-1960s. For some countries in the region, the pattern of peaking and decline is evident though not so pronounced as in Japan; this is true of Germany. The United States appears to have shown a rather different pattern, with a



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revival of rapid growth in an already mature market in the 1990s. Much of this growth, however, related to the quite exceptional development of the information sector. The sharp downturn in the information business in 2001/02, the probable peaking in the construction market and an accelerating shift of OEM business offshore suggests that this market, too, may already have passed its peak.

So, if the three mature markets that still account for over half cable market volume cannot be relied upon as a source of incremental demand, where should we look for growth in the future? In chart No. 5 we attempt to give some answers to this by detailing the development of the newer and emerging markets for copper wire rod over time. Wire rod data is shown, as a full set of figures is not available for insulated cable. Each chart covers a twenty-five year period on the x-axis (the exact period chosen varies). With just a little bit of imagination, the different stages of "S-curve" development in the emerging markets can be seen. Having really got underway in the 1980s, both South Korea and Taiwan are already at an advanced stage in the cycle. In both cases the output of copper wire rod, and to a lesser extent insulated cable, grew far beyond domestic requirements, especially as the rate of growth in the domestic market began to slacken. With slower economic growth and weaker export performance, Taiwan already appears to have passed its peak; the same may also be true of South Korea.

Other new and emerging markets, individually with a much greater potential, are at an earlier stage in the development cycle. The graphs suggest that China, ASEAN and Mexico are all well into the rapid ascending leg of the curve but each, probably, still has a long way to go. "Other Asia" markets, as a group, appear to have a greater potential for accelerating growth, while "Other Latin America" and especially Africa have yet to enter the stage of rapid growth. With their unique political histories, the Former Soviet Union and Central Europe clearly demonstrate a very different growth pattern to other emerging markets but, here too, the regions could be showing a period of modest incremental growth from a low base before the rapid ascending leg of an "S-curve" of development.

Although a look at charts such as these can give us an intuitive grasp of how each market will develop, it is best not to be too simplistic. Each country market has its own very specific character of infrastructure, industry and construc-

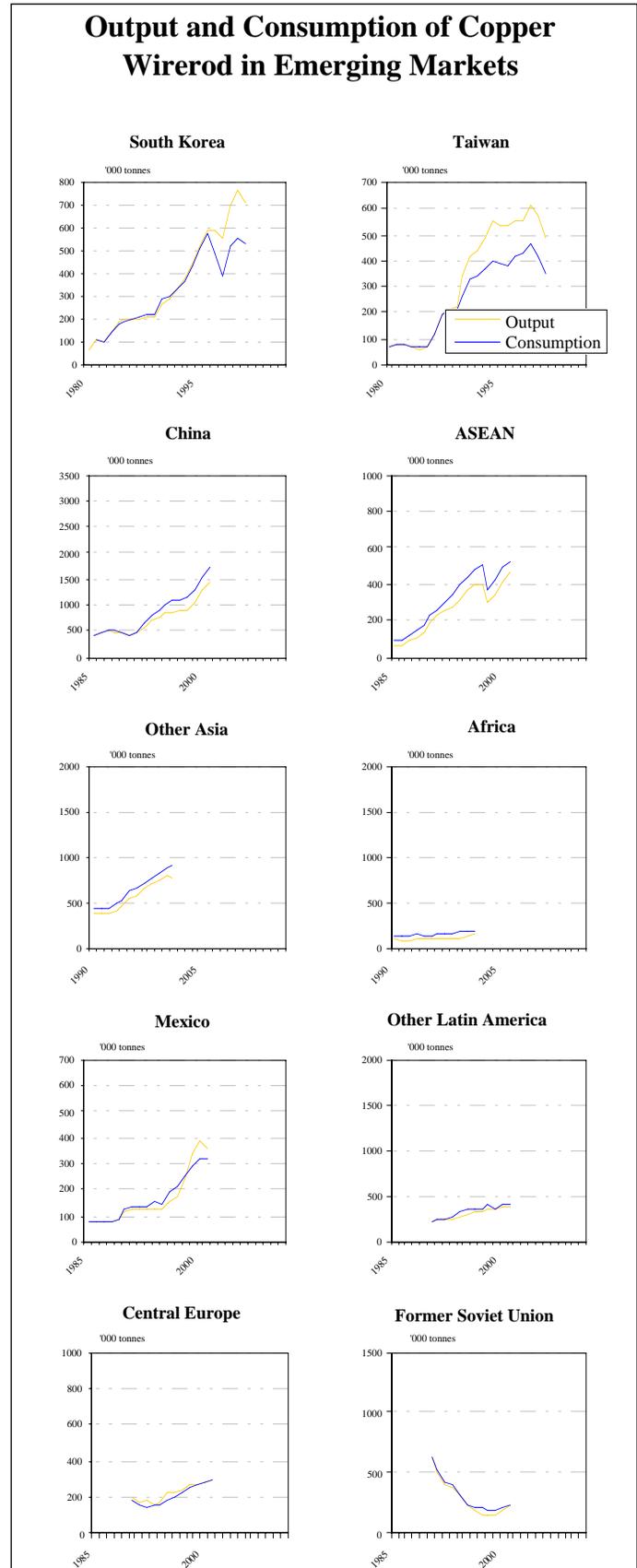


Chart 5

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tion market development, and merits as a base for cable manufacture. As most of the growth in the cable market will inevitably come from these emerging markets, it is essential for cable manufacturers to understand these structures if the right strategic decisions are to be made. When looking at these markets, it is increasingly important to look not only at organic market development, but also at the relocation of OEM consumers of cable and of the cable industry itself as trade increases to understand the true emerging market potential. At present, Metalica Ltd. is taking a close look at one important regional market for cable and also copper fabricated products in the multi-client study *"Opportunities in the Latin American Copper Market"*. Other regional markets merit similar detailed investigation.

Whatever the locational focus of future development, the decisions facing today's major cablemakers are not easy to make. It is quite clear that the potential for supplying the global market from an existing base in mature markets is limited. It is also clear that, with the lowering of trade barriers and other forms of market insularity, that islands of high profitability will continue to be washed away. In the past, the emergence of major new country markets has tended to mean the growth of large domestic wire and cable companies. This was true in Japan and, later, in South Korea and Taiwan. The next new giant, China, could prove to be very different. As yet, top ranking international domestic companies have failed to develop in China. At the same time, existing international suppliers have generally failed to gain a really strong foothold in this fast-growing market, and even less have managed to achieve reasonable returns. In this case, the question over how to respond to the shift in regional market emphasis appears to remain unanswered.

There also remains an important question mark hanging over the appropriate response to changes in the market's product mix. The sharp downturn in the information sector in 2001/02 has at least shown us that this market is more volatile than we had previously realised, probably also that rapid trend growth is not assured. We could read from this that the recent trend towards product focus is not necessarily a good thing, broader based companies having less exposure to the economic cycle. Whatever the conclusions to be drawn, a good understanding of current developments in their historical context provides a useful basis for judging where the industry is headed next and, hopefully, how best to respond.

## News in Brief

(provided by Metalica, UK)

**Pirelli Reaffirms its Commitment to Energy Cable:** With the unveiling of its three-year industrial plan, the global market leader in wire and cable, **Pirelli SpA**, announced its continuing commitment to all of its main business segments. Following the purchase of a controlling stake in Telecom Italia in July 2001, Pirelli had intended to sell its energy cable and truck tyres business divisions. Reasons cited by Pirelli for the change in strategic direction were the company's proven capability of managing the assets formerly for sale better than competitors and the ability of the group to self-finance growth without the need for asset sales.

**Consolidation in Japanese Winding Wire:** The planned tie-up of the winding wire operations of **Sumitomo Electric Industries Ltd.** (SEI) and **Optec Dai-Ichi Denko Co. Ltd.** (majority owned by **Mitsubishi Materials Corp**) and Wintec Wire (a jointly owned marketing company) is to be accelerated due to the faster than expected decline in winding wire business in Japan. The new company, to be formed in October 2002, will be majority owned by SEI and will include the operations of Sumiden Magnet Wire (SEI's domestic winding wire business), SEI's overseas operations and all Optec Dai-Ichi Denko business (primarily domestic). The consolidation will involve the closure of Sumiden's Nagoya Works and a capacity reduction at Optec's Taguchi Works. The units to be consolidated currently employ 690 people; projected annual sales revenues amount to Yen 27 billion. Prior to consolidation, Optec Dai-Ichi Denko is to become a wholly owned subsidiary of Mitsubishi Materials following a share swap between the companies.

**Japanese Tie-up in General Wiring:** An agreement has been made for the integration of the building and industrial equipment wire and cable business of **Sumitomo Electric** (SEI), **Hitachi Cable** and **Tatsuta Electric Wire and Cable** in July 2002 with the establishment of a new joint venture responsible for the allocation of production and sales of the separate company products. The new company will be 40% owned by SEI, 40% Hitachi Cable, 10% Tatsuta Electric and 10% Tonichi Kyosan Cable; it is expected to employ 200 people and achieve sales of Yen 50 billion a year.

**Change of Ownership for Hitachi Wirerod Business:** The ownership of **Hitachi Cable's** wirerod facilities is to change



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in response to shrinking demand. The company is to transfer its wholly owned Toyoura Works to Hitachi Wire Rod Co. Ltd., currently 30%-owned by **Nippon Mining** and other minority interests, thus integrating the operations of its two plants. Hitachi Wire Rod, due to become sole upstream copper processor for Hitachi Cable, will become a wholly owned subsidiary of Hitachi Cable as minority interests are to be bought out in June 2002.

**Change also in Hitachi's Winding Wire Operation:** The winding wire business of **Hitachi Cable** is to be transferred to its wholly owned subsidiary **Hanashima Electric Wire Co.** (to be renamed Hitachi Magnet Wire Co. Ltd.), by this means consolidating the group's two winding wire operations within a single company. The net sales for FY 2001/02 of the winding wire business to be transferred was forecast to be Yen 12.38 billion, 29% down on the previous year; an operating loss of Yen 0.37 billion was also expected. Net sales of Hanashima Electric Wire in FY 2000/01 amounted to Yen 5.19 billion.

**Announced Spin-Off of LG Cable:** South Korea's **LG Group** has announced that it is to spin off four of its affiliate companies by the end of 2003, including cable producer **LG Cable Ltd.** and copper smelter **LG-Nikko Inc.** The other affiliates concerned are chemicals company **LG-Caltex** and utility **Kukdong City Gas**. Cross-holdings between these and other LG affiliates will be eliminated. The Koo family, which founded the LG Group, will remain major shareholders in the spun off units.

**Troubles at TFK in Poland:** Telecom cable producer **Tele-Fonika Kable** (TFK) plans to close its Ozarow plant and to lay off 25% of its 2,600 workers following the collapse in its markets. A union strike has been announced in response to this restructuring plan.

**Joint Venture in Automotive Wire Harnesses:** Japanese cable maker **Mitsubishi Cable Industries Ltd.** is to form a 50/50 joint venture with autoparts producer **Lear Corp.** by which the companies will merge their design and sales units for automotive wire harnesses. Fiscal 2004 sales are targeted at Yen 12 billion. The two companies also intend a reciprocal production agreement covering their affiliate factories around the world.

**Expansion in Philippines Auto Harnesses:** Automotive harness and parts producer **Yazaki Torres Manufacturing Inc.**, a joint venture between Yazaki Corp. of Japan and the local Torres family, is to spend P1.3 billion over the next five years to increase capacity at its Calamba factory to meet anticipated demand from its existing customer

base. The plant's manpower is scheduled to rise from 6,000 to 10,000.

**Delphi Continues to Rationalise:** Leading automotive parts and wire harness company **Delphi Corp.** announced further cuts after the completion of its global reduction in headcount by 11,440, announced in March 2001. This year, the company intends to lose a further 6,100 employees in the US and Europe. Cuts in the first quarter already account for 3,300 job losses, leaving a further 2,800 to be implemented before end-March 2003.

**Closures of US Copper Telecom Cable Plants:** The United States' two leading copper telecom cable producers are both closing plants. **Superior Essex** has announced the closure of its Elizabethtown, Kentucky facility, with the loss of 230 jobs. **General Cable** is to close two units, at Monticello, Illinois and Sanger, California, with a combined workforce of around 200. The company also announced the sale of a small speciality cable business in the UK and the transfer of its fibre optic cable business to a joint venture company with the intention of achieving additional market access.

**Major Cuts to Come in Fibre Optic Cable:** Suppliers to the fibre optic sector see the need for further cuts after the market slump late in 2001 and the muted recovery so far this year. The question is the scale of retreat. **Corning Inc.** in April announced that it may cut its workforce by 4,000, or 12.5%, with restructuring charges in the second and third quarters of around US\$600 million. Exactly where the axe will fall has yet to be announced.

**Optical Fibre Joint Venture in Russia:** A memorandum of understanding has been signed between **Alcatel** and The Russian telecom service provider **Svyazinvest** for the formation of an optical fibre joint venture, due to come on-stream in 2003.

**Avaya Still Looking for Buyers for its Cable Unit:** The proposed sale of **Avaya Inc.'s** data cable business was announced in February, but as yet no buyer has been found. Avaya is seeking twice annual revenue for its cable unit. That revenue has fallen dramatically; at US\$143 million, first quarter 2002 sales were 63% down on last year.

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