

Machinery: Production Capacity and Utilization Rate of Energy Cable Production

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David Garza, Session Chairman

Now we come to our third speaker of this session. His name is Pentti Hätälä. He was born in Finland and has ample experience in the wire & cable industry. He is currently the CEO of Maillefer SA. He came to the company in the 1980s and held various positions, including Executive Vice-President Customer Interface, and has been CEO since 2001. Please welcome Mr. Pentti Hätälä.

Pentti Hätälä

Good afternoon,

Today I like to give my input to the discussion about the capacity or overcapacity, to be or not to be. This question is also of extreme importance to me and to our company.

Objective of this presentation

The purpose of this presentation is to provide input from Maillefer, the largest supplier in Energy Cable machinery, to the discussion of production capacity versus market needs.

The methodology used here is based on the theoretical output of all CV lines compared to the actual XLPE material consumption. All the data on material consumption for this presentation was provided by Borealis' Rudi Peters and from Maillefer's Antti Mattila, to whom I both want to express my greatest gratitude.

To give a longer term perspective to the everlasting discussion of overcapacity or not, the 1997 ICF Congress presentation of ABB's Mr. Bernard Althaus: "Capacity and Utilisation" has been used as reference.

We have selected a CV line production as an example for the overcapacity calculation and we have tried to develop a method together with Mr. Rudi Peters from Borealis and with Mr. Antti Mattila from our company, who has opened - a little bit - his own secret data base. He helped us to develop a set of parameters which might help us to make a simple simulation about how it could be.

During the 1997 ICF Congress, Mr. Bernard Althaus from ABB gave a presentation on the same topic. So we decided to compare his results with those we got from our investigation, in order to get somewhat of a long term perspective.

But first let me introduce to you my company.

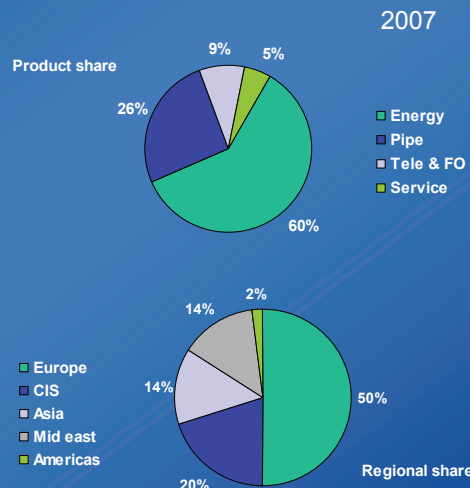
Maillefer – the company

Private company founded in 1900;
buyout in 2001

Grew 100% between 2005 and
2007 to reach €160 M sales

Locations in Switzerland, Finland,
China, Russia, USA and over 70
countries

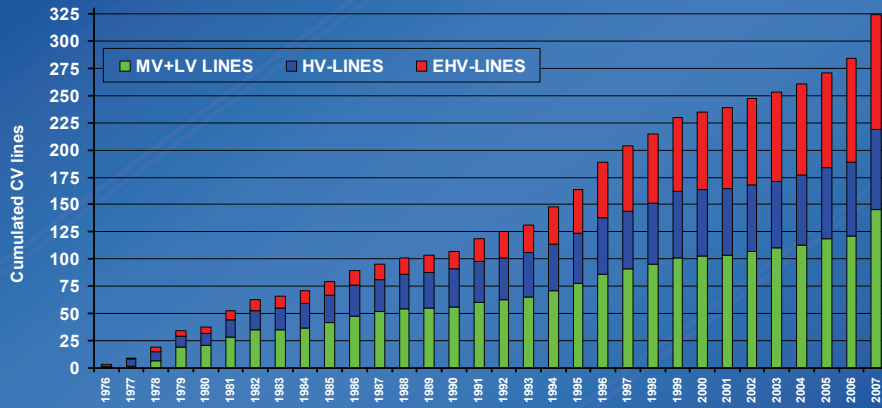
Leading supplier of wire & cable
extrusion and composite pipe
manufacturing solutions



Maillefer is the leading supplier of manufacturing equipment to the wire & cable industry. Our turnover was €160 million in 2007 and this year will amount to more than €200 million. We are heavily involved in the energy application area and also have some experience in the pipe sector.

Most of our sales go to Europe, but also the former Soviet Union (CIS), Asia and the Middle East are equally important for us.

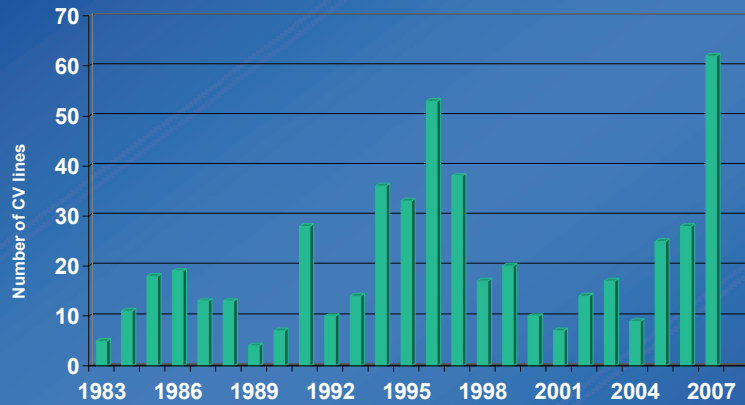
Maillefer – cumulated CV line orders



Up to this day, Maillefer has delivered more than 330 CV lines worldwide

Here you can see the CV line deliveries of Maillefer over the last 30 years. In total we have delivered more than 330 CV lines worldwide, this is approximately 50% of all the deliveries in the world. In particular, the extra-high voltage (EHV) has increased significantly in the past years.

Industry-wide number of CV lines yearly



Total of 710 CV lines since 1983 counting ALL suppliers

Cycle of big investments during 1993-1997 and then again starting in 2005

Source: Mallefer management statistics

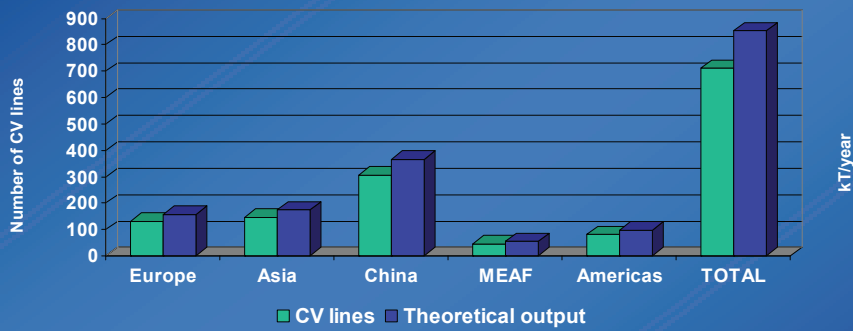
These are the numbers for global deliveries of all CV lines, according to our information. The total amounts to 710 CV lines since 1983. Our estimate also includes the CV lines made in China. It is interesting to see the peak in 1996 in comparison to the peak in 2007. Although we talk today about a booming market, both peaks have about the same height, namely 55 in 1996 and 62 in 2007. The cycle time from peak to peak is about 11 years and the length of the cycle is about 5 years.

Reasons for difference between theoretical output and actual consumption

- Product mix
- Order backlog
- Run lengths
- Production shifts
- Production unit availability and reliability
- etc.

Let us look at the theoretical output of the CV lines. We all understand that it is rather difficult, actually almost impossible to come up with this theoretical number because of the various production parameters listed above. For this reasons we decided to base our simulation on a certain set of fixed parameters.

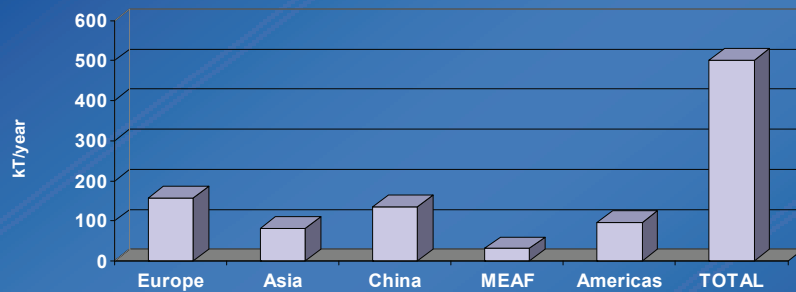
CV lines installed vs. theoretical output in 2007



With 710 CV lines the theoretical max output is 852 kT/year, where each line produces 1.2 kT/year on average

Here you can see the installed (green color) and the theoretical (blue color) output of all CV lines in 2007.

Actual consumption of XLPE material in 2007



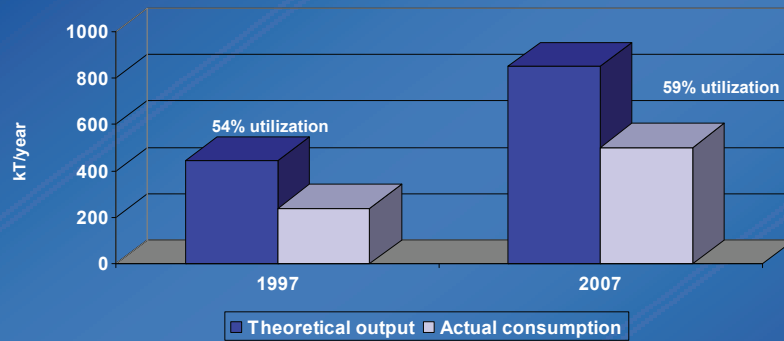
Estimated total XLPE consumption is 502 kT/year

Source: own research

Townsend 2007 study places total LDPE consumption for W&C at 561 kT. If we attribute 90% of this for XLPE, then the above estimation is quite close.

The actual consumption of cross-linked polyethylene (XLPE) material in 2007 is shown on this slide. According to our estimate, the total XLPE consumption worldwide amounts to 502 kT per year.

Utilization rate remained low from 1997 to 2007 worldwide

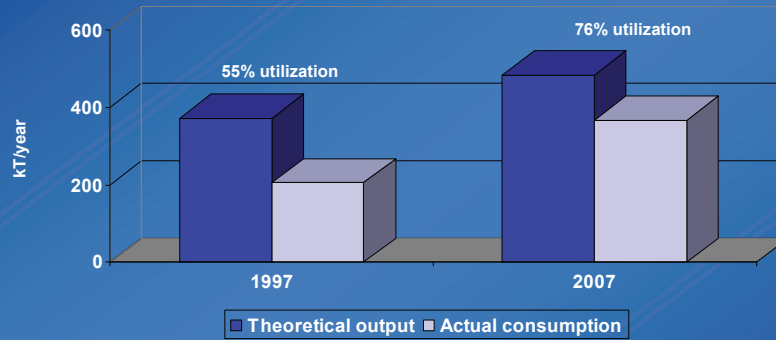


Utilization is a ratio of actual consumption over the theoretical output

Here you see the utilization rate of the CV lines in the world from 1997 to 2007. In 2007 the utilization rate was 59% based on the total global figures, in 1997 it was 54%.

With all the investments in new CV lines during the last 10 years, the world has really not changed a lot. What could be the reason?

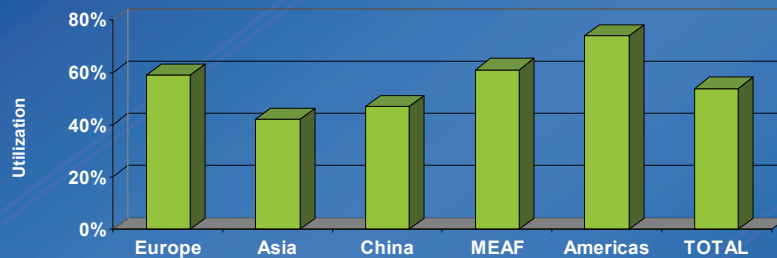
Utilization rate improved from 1997 to 2007 outside China



Utilization is a ratio of actual consumption over the theoretical output

What happens if we leave China outside of our simulation? China is such a heavy player in CV line manufacturing. It might have an impact. Indeed, here we see a difference now between the utilization rate figures of 1997 with 55% and of 2007 with 76%. The utilization rate outside of China has increased quite a bit since 1997.

Utilization rate by region in 1997



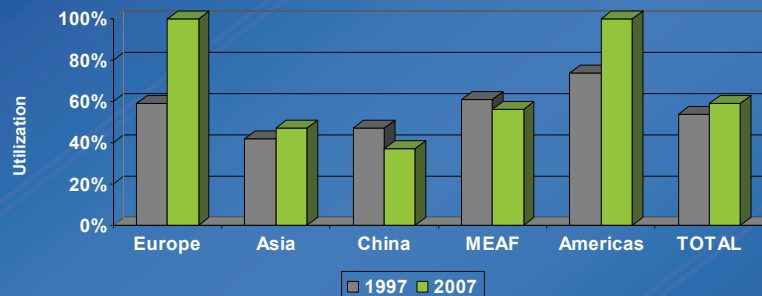
The total estimated utilization rate in 1997 worldwide is 54%.

In Europe there are a lot of CV lines producing HV cable, which have a lower output than lines producing MV cable.

Also, we assume that the average output remains 1.2 kT/year, regardless of lower outputs found in China and Asia.

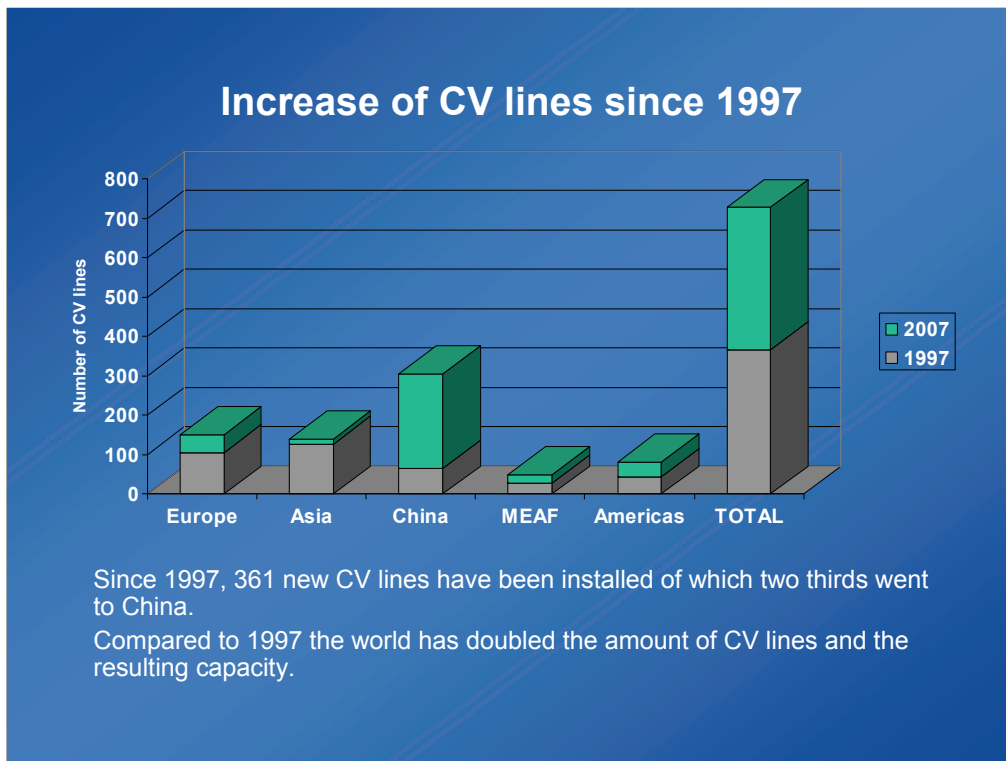
In 1997 the utilization rate of CV lines in Europe was 60%, in the Americas it was 75%, in Asia a little bit more than 40%, in China 45% and in the Middle East and Africa around 60%.

Utilization rate comparison of 1997 with 2007 by region



The total estimated utilization rate of 2007 worldwide is 59%, relatively unchanged since the 54% of 1997.

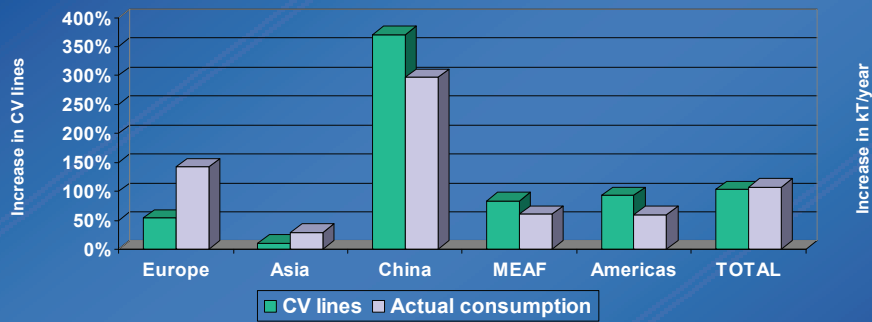
Now, I think, this might be of great importance to you. You can see a comparison of the utilization rate of CV lines by region in 1997 and in 2007. In Europe it was 60% in 1997, nowadays according to our estimate with the given parameters it has reached close to 100%, that means the capacity is in full use. Asia and China as well as the Middle East and Africa have remained at a very similar level. The Americas have also reached the 100% level in 2007, their capacity is also in full use according to our study.



There is one factor which may have an impact here. It is the number of new CV lines installed in China since 1997. We should remember that in China a huge number of lines were supplied by local sources, where the reliability, availability and performance may not yet have reached a level comparable to that in western countries.

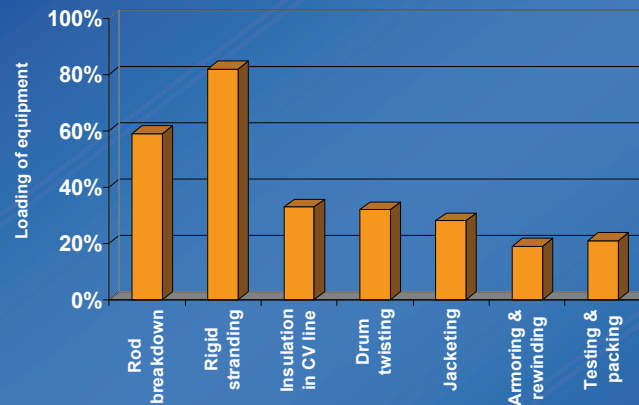
Since 1997 the total number of CV lines in the world has doubled, a major part of that is due to China.

Increases in CV lines and actual consumption by region since 1997



This is a comparison of the number of CV lines and actual consumption by region since 1997. China has had the highest increase in consumption.

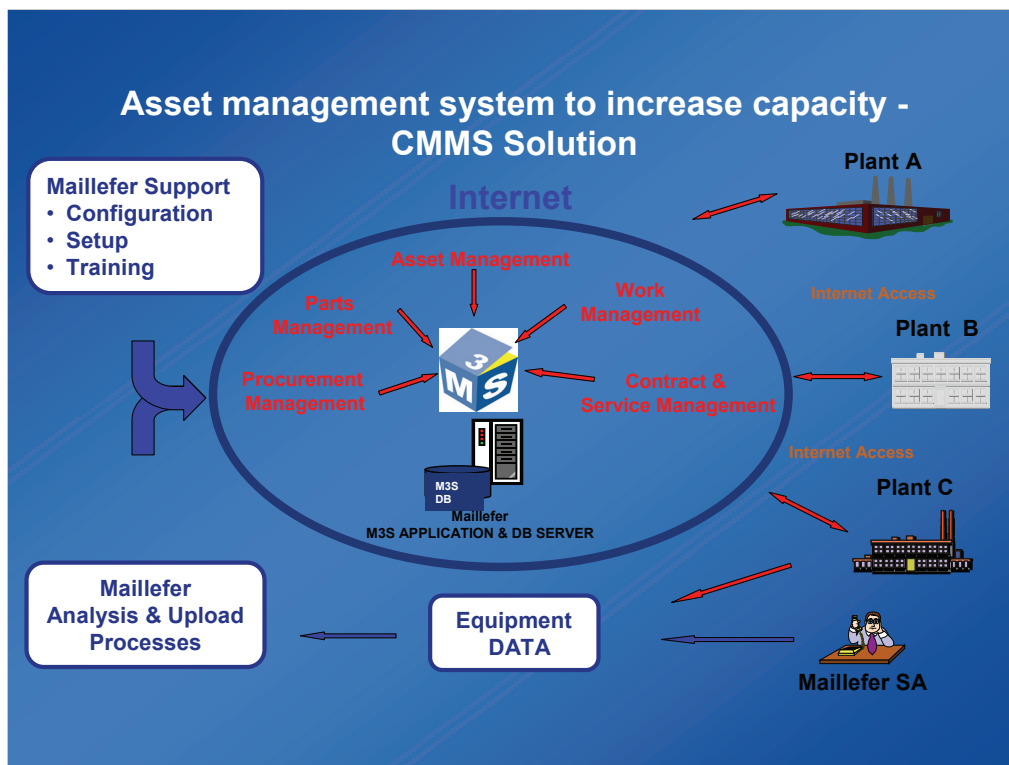
Line loading – limitation of a bottleneck



Keep in mind that a CV line is just one of several resources required in manufacturing a particular cable.

The limiting factor keeping a CV line from running at full performance could be any of the other process steps, especially if they serve several CV lines.

When we talk about this kind of utilization rate, we easily talk about the insulation capacity of the CV lines. But before we have a finished cable, several other process steps are involved, as you see above. So, there may be bottlenecks in production, other than CV line capacity, limiting the output of cables.



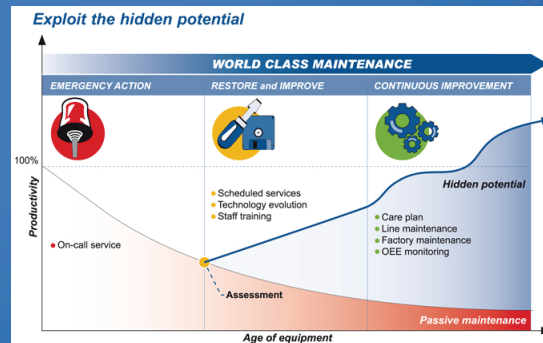
In Maillefer we have developed an asset management system, where we can manage all the equipment in the plants. It includes a special maintenance system, so the production capacity is in full use, when it is needed.

Improve productivity for the installed base

Service / OEE is the cheapest way to increase capacity

A full-scale preventive maintenance customer project is reaching completion in 2008

- > Asset management including maintenance database
- > Integrated drawings
- > Parts management



The cheapest way to increase your capacity may begin by looking at the production units, the production factory and at the overall efficiency. By including an asset management system you may be able to increase your production capacity as shown by the blue line in the above graph.

In conclusion, I would like to say:

If we accept the method as described in Mr. Althaus' ICF presentation of 1997 and compare it with updated data from 2007, then:

Can we still claim overcapacity when the world's CV line capacity has doubled over the last decade while the utilization rate has remained relatively unchanged (i.e. 59%)? Outside China the rate has gone from 55% to 76%.

Utilization rate improvements noted in Europe and the Americas have been counterbalanced by traditional methods carried over to new capacity delivered into other regions, so they have not been improving their utilization rate at the same level.

It is hoped that these thoughts presented here will be valuable for your own considerations.

Thank you very much for your attention.