To: IEEE 802.3af Taskforce on Powering via the MDI
From: TIA TR41.4 Subcommittee on VoIP Gateways and Infrastructures

In our sub-committee meeting on 17 May, 2000, TR41.4 has directed that the following communications be sent to you as advice and as a possible aid in your task of determining the method and system for providing power to IEEE 802.3 compliant devices via the MDI.

In the course of our discussions, we reviewed the status and state of the work in progress within your taskforce. The consensus of the group is that there are three items of advice we wish to provide to you.

First, that there are differing conditions under which powering might be profitably be provided via either the ""signal"" pairs or the ""idle"" pairs. These conditions, while including overlaps, also include cases which are distinct from each other. We therefore would recommend that powering methods be adopted so that an end device might receive power over either set of pairs, dependent on the infrastructure conditions. This implies that the source device need only supply power over one set of pairs as dictated by the network infrastructure but that the end device should be able to receive powering from either pair set. This compromise worked well in the case of ISDN powering and should serve the IEEE 802.3af community in good stead as well. It also provides a mechanism whereby the current log jam might be overcome.

Secondly, the discovery procedure should indeed be executed on the pairs over which power is to be provided and that such discovery should ensure that the end device is in fact a ""powerable"" device that is safe to power.

Thirdly, it is very important that the discovery or powering procedure should also ensure that the circuit may also be safely powered. By this we mean that there is the potential, particularly in cable reuse environments wherein the craftsperson may think that they are using a point to point cable as defined by IEEE 802.3, but which is in fact not such, and that it has parallel devices attached. A case in point for this might be in an office complex wherein an ISDN system is being replaced with an 802.3 system. The ISDN system might legitimately have multiple S-Bus devices on the same 4-pair cable which terminates using ""RJ45""-type connectors. If that cable is reused for an 802.3 network, the endpoint might very well respond to the detection scheme within the detection parameters but when power is applied, parallel connected surge protectors left over from the ISDN usage might overheat and cause a fire if subjected to the nominal voltage and if the current is not limited correctly. This third issue is basically a safety issue. Since in the telephony world, cable reuse is common, we view this as a serious, potential issue.

We realize that this last issue in particular is more directly related to IP Telephony, but its applicability is more general than this one application.

Again, we thank you for your efforts and hope that the above comments may be of some use and service in your efforts.

Sincerely,

Robert T. Bell
Chair, TR41.4