Revised, 2 September 1997

IS THERE LIFE FOR THE ACCOUNTING RATE SYSTEM AFTER 1998?

Paper prepared by Dr Tim Kelly[1], for TeleGeography 1998

The system of international accounting rates and settlement payments is almost as old as the telecommunications industry itself. Ever since the first international telegram was sent in the 19th Century, countries have been looking for ways to share the costs and revenue from international telecommunication services in a mutually agreeable manner. The system they hit upon—international accounting rates—is effectively a dual price system whereby, for each call, one price is charged to users by the originating Public Telecommunication Operator (PTO). This is the *collection charge*, or retail price, and is usually set in local currency units). A second price is agreed by the terminating PTO and the originating PTO (the *accounting rate*, or wholesale price, usually set in an international currency unit such as US dollars or SDRs). This is used to determine the price charged to the originating PTO by the terminating PTO (the *settlement rate*, usually half the accounting rate, which corresponds to the price of a half-circuit from the border between the two countries). If there is an imbalance in the volume of incoming and outgoing traffic, then the originating PTO which generates more traffic pays for the difference to compensate the terminating PTO (the *net settlement payment*).

So far so good; or at least for a hundred years or so. The system was progressively modified, most notably in 1992 when the Member States of the International Telecommunication Union (ITU) agreed upon the Recommendation, ITU-T D.140, which committed them to implementing principles of cost-orientation, non-discrimination and transparency when negotiating accounting rates, and to do so within a five year period. That period ended in 1997, and while it was clear that some progress has been made—the rate of reduction in accounting rates after 1992 was twice as fast as it had been in the previous five years—the adjustment process failed on all three counts:

- Accounting rates are generally acknowledged to be still a long way from true **cost-orientation** and international telephone services are used almost universally to cross-subsidise other, domestic services. One way of estimating the degree to which settlement rates are inflated is to compare the cost of terminating a call originating from a mobile with a call originating from an international source. For instance, the price charged by BT, for terminating a mobile call within the United Kingdom is below 2 US cents per minute whereas the costs of terminating an international call range from 8 US cents per minute to more than US$ 1 per minute. While BT would no doubt wish to reduce some of these rates, particularly with countries to whom it sends more traffic than it receives, it is unable to do so without the consent of the PTO in the foreign country.
- Accounting rates are rarely **non-discriminatory** because they are negotiated on a bilateral basis. Thus a price charged for terminating traffic from one country might be much as ten times higher than the price charged to another country, even though the costs of terminating the call might be quite similar.
- Despite the pressure towards **transparency**, only three countries, New Zealand, United States and United Kingdom, oblige their carriers to disclose their rates.

In the intervening years between 1992 and 1997, many different national and international bodies tackled the accounting rate reform issue without much success, including the FCC, the OECD, the WTO, the EU and the ITU. Indeed, the situation of traffic and settlement imbalances has become much worse. In 1995, the estimated value of gross settlement payments worldwide was US$ 28.4 billion out of a total international telephone revenue of US$ 52.8 billion (see Figure 1).

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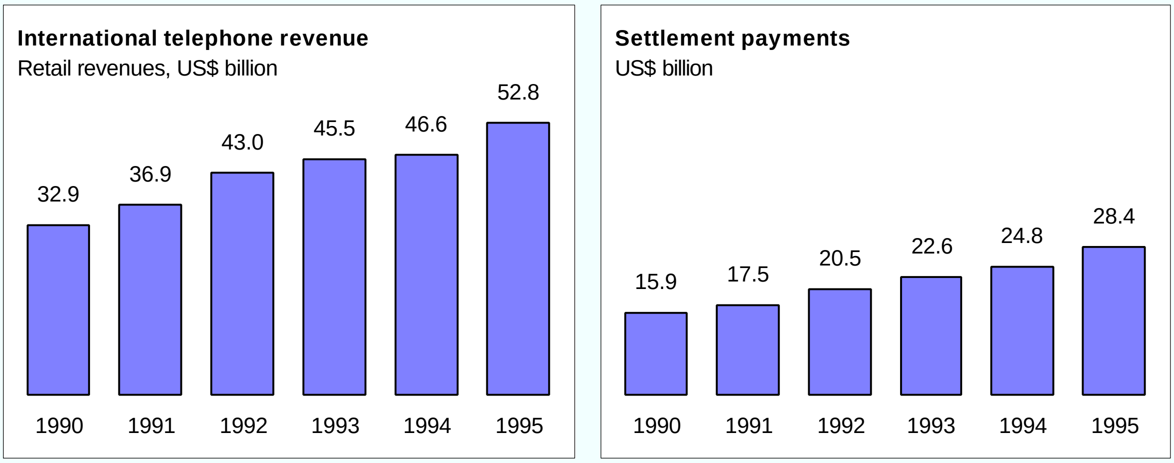
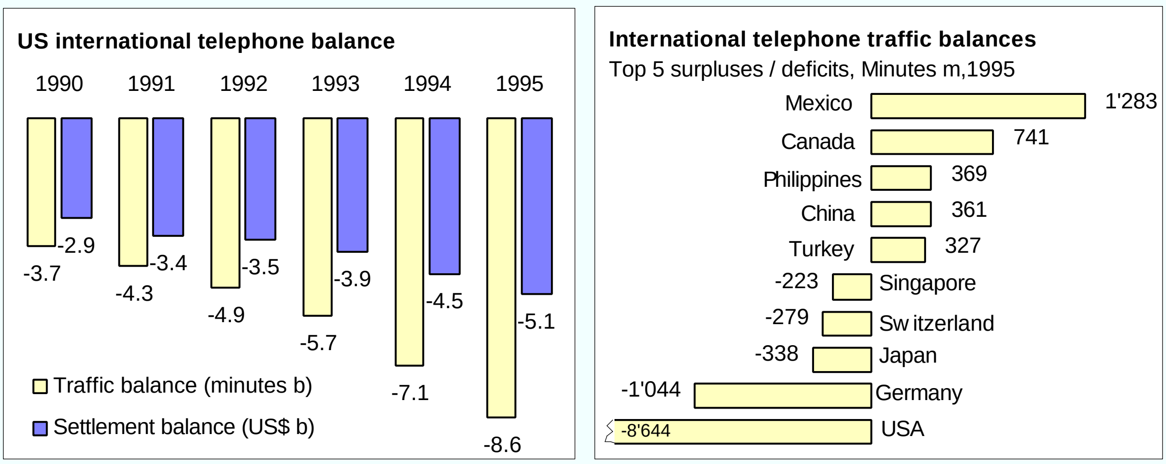
Figure 1: International telephone revenue and settlement payments
Retail international telephone revenue and settlement payments, 1990-95, US$ billion



Note: Left chart shows retail international telephone revenues (tariffs collected in the country where the service is billed). Right chart shows estimated gross settlement payments made for terminating calls abroad.
Source: ITU World Telecommunication Development Report, 1996/97.

The increase in settlement payments has been caused, at least in part, by differences in the rate of market liberalisation. In particular, many countries have liberalised their markets for call origination (allowing, for instance, the use of call-back, calling cards and country-direct services) but have not yet liberalised the market for call termination services. Even where call termination services have been liberalised, incumbent ex-monopolies remain in a strong position. Consequently, imbalances continue to grow. The United States, which is the home to most call-back operators, had an estimated settlement deficit of US$ 5.4 billion in 1996. But other countries, notably Germany, Japan, Switzerland and Singapore, also send out much more traffic than they receive (Figure 2). Understandably, it is these countries which have the most urgent interest in reforming the system.

Figure 2: Uneven settlements
US international telephone traffic balance and traffic balances,1990-95, and top 5 deficit and surplus countries, 1995



Source: ITU World Telecommunication Development Report, 1996/97.

During 1997, several processes have added to this urgency:

- At the start of the year, the US regulator, the FCC, announced its intention to oblige US carriers to pay no more in settlement rates than a prescribed rate or "benchmark". On August 7th 1997, after a period of consultation during which more than 90 foreign governments and carriers expressed their concerns, the FCC confirmed that the benchmarks would be implemented at rates ranging from US 15 cents per minute for high income countries to US 23 cents for low income countries with the deadline for implementation staggered between 1999 and 2003. The significance of this step is that it represents a move away from bilaterally negotiated rates towards a threatened unilateral action.
- In mid February 1997, some 69 countries reached an agreement at the World Trade Organisation (WTO) to liberalise markets for basic telecommunications. These 69 countries accounted for some 94 per cent of the world market, by telecommunication service revenue, and many of them (including most countries of Western Europe) plan to introduce competition as early as January 1, 1998. With liberalised market entry, the possibility opens up for operators to establish a switch on a foreign territory, either directly or indirectly via a consortium, and then provide end-to-end service to that switch. The advantage is that they would pay an interconnection charge not a settlement rate.
- Throughout the year a series of announcements have increased the options available to operators for carrying traffic. For instance, many companies are now actively publicising their refile service, permitting operators to offer least cost routing, whereas previously such deals had been negotiated behind closed doors. Equally, many companies are now offering Internet telephony[1] and fax services, either from a computer to a telephone or, in some cases, between two telephones routed via the Internet. PTOs trialing this service, or offering it commercially, include Telecom Finland, Deutsche Telekom, AT&T Japan and USA Global Link.

All of these developments threaten to undermine the accounting rate system. But in other respects, the traditional system continues to hold sway: some 66 countries have "banned" call-back and other alternative routing systems, and only a handful of countries have so far liberalised resale or refile. The consequence is increasing disparities in the pace of liberalisation, and this will inevitably have an impact on the future of the accounting rate system. Many commentators suppose that accounting rates will disappear, almost overnight, on January 1st 1998. But how likely is that scenario?

- The US carriers would appear to be have the strongest vested interests in changing the system. But ironically, from the FCC at least, there is no talk of changing the system, just reducing the rates to levels at which settlement payments would be reduced. Any rational reform of the system would have to begin by "unbundling" accounting rates into their component parts so that carriers, in a competitive market, can make rational build or buy decisions (see Box 1: Ten Propositions to reform the accounting rate system). But if the accounting rate system were abandoned, so too would be the principle of 50:50 revenue division. The FCC estimates that the cost of terminating calls in the United States to be around US 4-7 cents per minute whereas the lowest benchmark rate proposed for other countries is US 15 cents. Thus US carriers could end up paying more than twice as much to terminate calls in foreign countries than they would charge in their own market if symmetrical accounting rates were abandoned. [2]
- The main beneficiaries of alternatives to accounting rates should be the developing countries who would presumably charge higher interconnection payments than they would expect to pay in developed countries, if they can show that their costs are higher. But developing countries are reluctant to change the accounting rate system because, for the moment, it works in their favour and they are afraid to tamper. Furthermore, a move away from a 50:50 cost split might mean that the direction of call-back, and therefore the direction of settlement payments, would be reversed (see Box 2: Like traffic, like water).
- With a system of interconnection charges, every single minute of traffic would need to be accounted for. Traditionally, most international telephone traffic was "traded" in that outgoing traffic more or less balanced out incoming traffic. Accounting rates only gained significance once traffic was out of balance. International operators may still find it convenient to trade traffic, particularly between alliance partners, rather than paying interconnection charges.

Undoubtedly, accounting rates will be replaced progressively by other systems. But the accounting rate system, which is already more than one hundred years old, may surprise some with its continuing longevity.

Accounting rates will most likely co-exist as one of a menu of options. Increasingly, we will see four types of relationship between countries:

- **Monopoly to monopoly relations**, where accounting rates or sender-keeps-all will continue to be prevalent;
- **Competitive to competitive relations**, where a variety of different revenue-division mechanisms will come into play including interconnection charges, accounting rates and sender-keeps-all. In the absence of an agreed framework for negotiation, commercial pressure will take over and PTOs will negotiate the highest rates they can for access to their home network and the lowest rates possible for access to foreign networks.
- **Competitive to monopoly relations**, where the competitive operator will be obliged to pay a half-circuit based termination charge and will no doubt try to apply a similar charge to incoming calls. Where monopoly countries continue to maintain highly differentiated rates between countries, they will be vulnerable to refile. Thus, the commercial logic will dictate that they move towards uniform termination charges. Several Asia-Pacific PTOs have publicly proposed a move towards call termination charges within the ITU and the APT.
- **Monopoly to competitive relations**, where the temptation for the monopoly would be to establish a switch on the foreign territory while still requiring half-circuit based termination charges in reverse. This is unlikely to be permitted. For instance, the FCC, in its Notice of Proposed RuleMaking on implementing the WTO agreement, issued in June 4th 1997, proposes that open market access be granted only to WTO Members, and not to others.

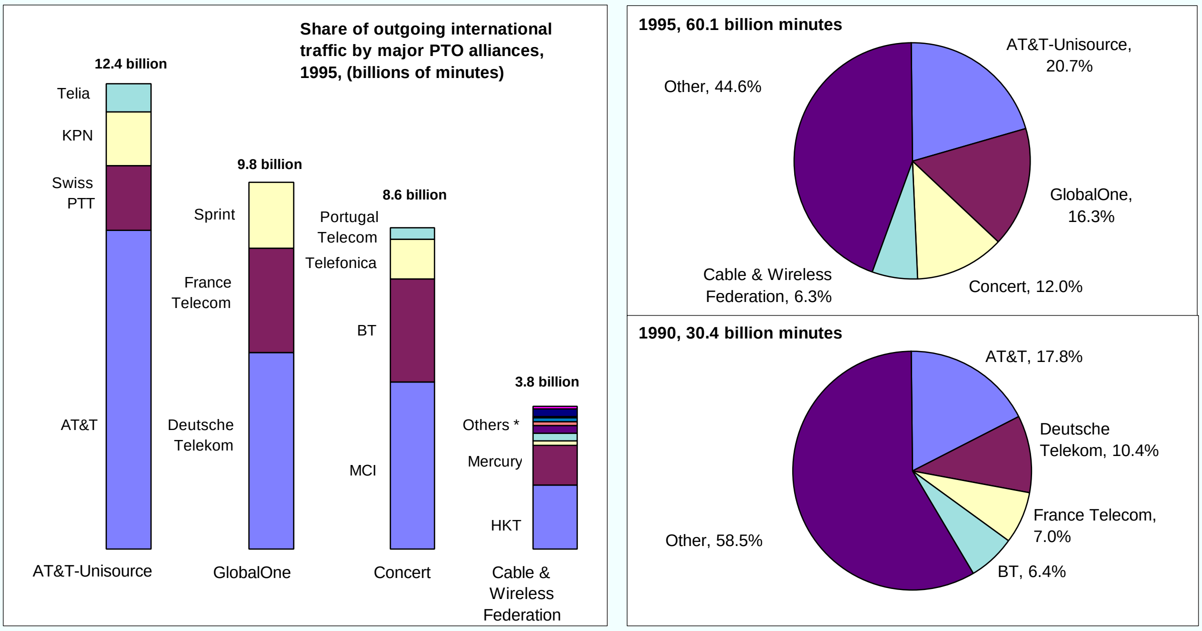
The post-1998 world will certainly be different, but it will take a while for the new environment to take shape. The most likely scenario is that the international telephony market will fragment into three distinct operations:

- Between countries, international alliances such as Concert, GlobalOne and AT&T-Unisource will offer an **end-to-end connectivity** where access is permitted, or traditional half-circuit access where it is not (Figure 3). They will face growing competition from Internet telephony, from international facilities owners (e.g., satellite operators, private cable operators) selling direct to consumers, and from a burgeoning spot-market in resale rates.
- For **call-origination**, competition will continue to be intense as new market entrants in areas such as call-back, Internet telephony and resale compete with more conventional carriers who will promote their brand name advantage through calling card services and loyalty schemes.
- For **call termination**, competition will be slow to arrive as former and actual monopolies continue to hold sway and to dictate rates for interconnection. Their dominant position will decline slowly, but it takes a long time, and considerable investment, for new networks to be deployed. Thus PTOs will seek to charge the highest rates they are able for call termination while they still retain a dominant position.

So what about users? What impact will they notice after the changes of 1998? The FCC predicts that the average price of a call originating from the United States will fall from a current average of US 88 cents per minute to around US 20 cents within five years. The national operators in Europe and elsewhere have been using the last few months of their monopoly to complete the tariff rebalancing process by raising fixed charges and local call charges while reducing long distance and international call charges. But the actual evidence for price cutting is more limited. International call prices have actually been falling by only 3-5 per cent per year. Indeed, in the United States, where competition is arguably the most intense, published call prices have actually *risen* in the last two years. Certainly, bargain prices will be available to those willing to chop and change between carriers. But they will not be universally available. Telephone carriers are not yet ready to give up the golden goose of international telephony.

Figure 3: Shifting allegiances

Share of outgoing international traffic held by members of major PTO alliances, 1990 and 1995



Note: The figures show the share of international outgoing traffic, in minutes, originating from PTOs belonging to major global alliances, as those alliances stood in July 1997.
* The "Others" category for Cable & Wireless includes operators in the Caribbean, Panama, Macao, Australia and elsewhere. The figures include all C&W subsidiaries, including those that are not fully-owned.

Source: ITU/TeleGeography "Direction of Traffic Database".

Box 1: Ten propositions for accounting rate reform

What direction should accounting rate reform take? The following propositions offer a personal view of one direction that could be taken:

1. The accounting rate system is in need of reform. In particular it needs to be adapted to a competitive market environment.
2. In competitive markets, it is likely that several different systems for cost- and revenue-division may co-exist. Carriers should be able to choose which one suits them best.
3. The settlement rate comprises three separate cost components: the international transmission link, the international gateway, and call termination (national extension). Reform of the settlement rate system will involve unbundling those three elements and allowing carriers to make economically rational build or buy decisions for each separate component.
4. In a liberalised environment, the business for originating calls and the business for terminating calls are quite separate. Both should be viewed as tradable services. A country which is opening its market should provide market access for both call origination and call termination.
5. In the majority of countries, call-termination will probably be handled by an incumbent (ex-)monopoly. The regulator should ensure that call termination is handled in a transparent, non-discriminatory and cost-oriented manner. These principles are outlined in ITU-T Recommendation D.140
6. Cost structures are asymmetric. Therefore there is no reason to expect or to insist that the costs for the three components will be the same in all countries. In particular, developing countries will need time and assistance to make the transition from the accounting rate regime which currently exists to a new cost-oriented system.
7. The cost of call termination should be distance insensitive within a country. While there may be minor differences related to the distance from the international gateway, these could and should be averaged out.
8. The main aim of the regulator should be to protect the customer not to protect the industry. To this end, regulators should ensure that the gap between the collection charge and the call termination charge is minimised. The best way to achieve this is through competition. In a competitive marketplace, there should be no need for principles such as uniform termination charges or proportional return.
9. Settlements payments deficits are primarily the result of unbalanced traffic flows which are, in turn, partly the result of the adoption of alternative call origination procedures. As such, settlement payment deficits are an inevitable outcome of the battle among carriers for market share. In the transition to a competitive environment, settlement payments can be expected to increase, rather than to decrease.
10. Incumbent operators with market power should offer the same price structure for call termination to all market players on a non-discriminatory basis, irrespective of the origin or routing of a call. Discounts may be available for volume of traffic. However, a company offering call termination should offer the same price schedule to all-comers, including companies with whom it has a financial relationship, in a non-discriminatory manner.

Box 2: Like traffic, like water

International telephone traffic is a bit like water; it will always tend to flow downhill. In other words, all other things being equal, the direction of telephone traffic will be dictated by price differentials in the same way that flows of water reflect underlying gradients.

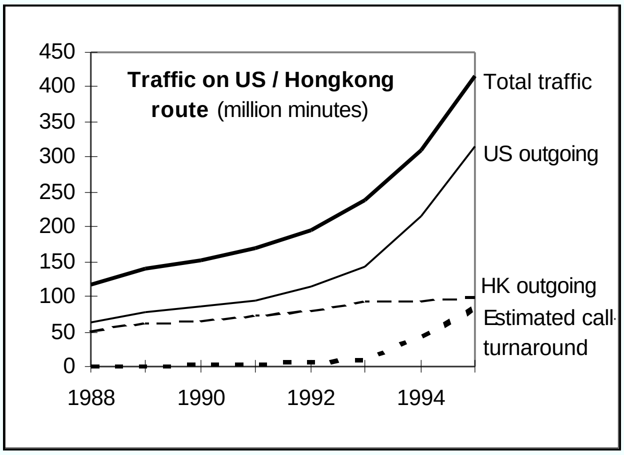
As explained above, for international telephone calls, there are really two prices: a retail price paid by consumers and a wholesale price agreed by the two PTOs providing the service. Historically, thanks to the accounting rate system, there was effectively no gradient in the wholesale price because the same rate (the *accounting rate*) was applied in both directions. Thus, insofar as there was price differential, it was in the prices charged to end-users (the *collection charge*) and the mark-up that this represented over the accounting rate. In competitive markets with significant economies of scale, such as the United States, the margin between the retail price and the wholesale price tended to be lower than in other countries, so that more traffic originated from the United States than from other countries.

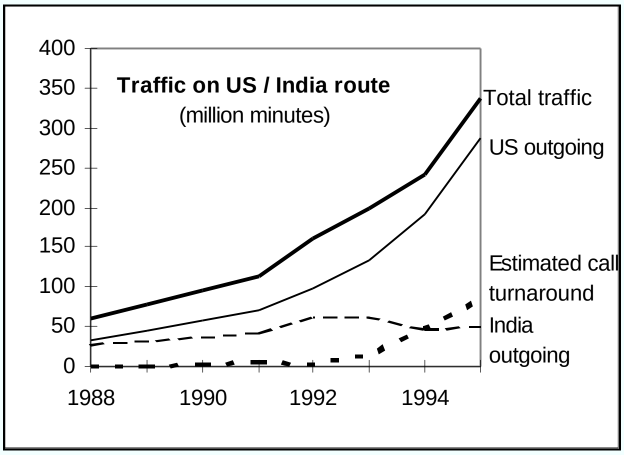
In the early 1990s two things happened which have accentuated that existing trend: First, computer technology became available which made it easier to reverse the direction of a call, through call-back, calling cards or country-direct services. Second, wholesale carriers in the United States began selling outbound capacity at rates either at, or just below, the settlement rate. They were encouraged to do this because a bizarre US regulation—proportionate return of traffic—meant that they could afford to lose money on outbound traffic in order to gain a proportionately higher rate of return traffic. Thus proportionate return created an artificial “gradient” in the settlement rate which made it more interesting to terminate traffic in foreign countries than in the United States. As a result of these developments, call-turnaround is now a multi-billion dollar industry (see Box Figure 2 below).

Developing countries have made appropriately angry-sounding noises about call-back and many of them have tried to ban it. But the reality is that by reversing the direction of traffic *to* flow to them rather than *from* them, developing countries have benefited from greatly increased net settlement payments. Call-back has been very much to their advantage, especially compared with alternatives such as refile, resale or Internet telephony. For a country such as India, call-turnaround probably generated around 82 million minutes of traffic in 1995 and contributed to India’s net settlement inpayment of US$ 210 million from the United States.

But what would happen if a real gradient were created in the settlement rate? What would happen if, say, India charged US 25 cents per minute to traffic in the sub-continent while US carriers charged only US 5 cents to terminate traffic in the United States. This proposition is not as far fetched as it may seem, because even though India is a member of the WTO, and therefore eligible to enter the US market, it did not make any real commitments to open up its own market for international telephony. The logical outcome would be that it would become more interesting to terminate traffic in the United States than in India. Thus the direction of call-back would be reversed. A switch located on Indian territory would able be offer US residents a rate only slightly above US 5 cents per minute whereas US based carriers could only compete at rates above US 25 cents per minute. Of course, the Indian operator offering the call-back service would have to make a net settlement payment towards the United States, but this would be more than adequately compensated by the revenues raised in the United States market. Perhaps those developing countries which are currently eager to ban call-back ought to think a little more seriously about this market opportunity, before foreclosing their options.

Box Figure 2: The call-turnaround effect
International telephone traffic on routes between US and Hongkong and between US and India, 1988-95





Note: Call-turnaround traffic is estimated by projecting forward the pre-1993 balance of outgoing and incoming traffic and comparing this with the actual outcome after 1993.
Source: ITU/TeleGeography “Direction of Traffic Database.”

Box 3: Accounting rate reform: Next steps for the ITU

Even before the FCC announced its Benchmarking action, the year 1997 was always going to be a significant one for the future of the accounting rate system. The multilateral agreement (ITU-T Recommendation D.140) reached in 1992 set out a five-year timetable for achieving cost-oriented accounting rates. While significant progress had been made by 1997, it was not to the satisfaction of all. The accounting rate system as it is currently defined has inadvertently created a structure in which there are "winners and losers" among individual operators, thus that further reductions in accounting rates are seen to benefit some to the expense of others. The voice of the user, for whom any reduction in prices is a "win-win" situation, is rarely heard.

The Secretary-General of the ITU, Dr Pekka Tarjanne, has targeted accounting rate reform as a key issue of his remaining mandate which ends after 1998. In a series of speeches and position papers he has outlined a set of principles that could provide the basis for reform:

- Continuity and viability of international telecommunication service;
- Transparency;
- Non-discrimination;
- Cost-oriented tariffing;
- Competition;
- The benefits of accounting rate reductions should be passed on to end-users;
- Ease of transition for developing countries.

At the start of 1997, he established an Informal Expert Group to advise him on accounting rate reform headed by Mr. Robert Bruce, an internationally renowned lawyer. The Expert Group report moves in the same direction as the FCC Benchmarking Order—towards lower rates—but follows a quite different route. The report of the group[3] recommended a multilateral move towards reducing accounting rate by five to ten per cent per year and argued that few settlement rates should be greater than US 25 cents per minute. Furthermore, the report foresees a much more rapid move away from bilaterally negotiated accounting rates than does the FCC. ITU-T Study Group 3, which is working on these issues, has established a working group to report on accounting rate reform, focussing specifically on a move towards call termination charges which are favoured by many countries.

The next major event in the ITU's calendar is the World Telecommunication Policy Forum, due to be held in Geneva, 16-18 March 1998, on the topic of trade in telecommunications, notably the accounting and settlement system. As part of the preparations for the meeting, ITU is commissioning a series of case studies looking at the impact of the changing telecommunications environment on specific developing countries. If a multilateral counterbalance to the FCC's action is to emerge from the current debate, that meeting holds the best chance of success.

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[1] An analysis of the likely impact of Internet telephony can be found in the ITU report, "Challenges to the Network: Telecommunications and the Internet", released in September 1997, and available for purchase from the ITU website at http://www.itu.int/indicators.

[2] To date, most proposals by US carriers to move towards asymmetric accounting rates have been blocked by petitioners to the FCC, even though this possibility was foreseen in the "Flexibility Order" of December 1996.

[3] The report of the Informal Expert Group, together with other ITU Recommendations, speeches, position papers and analyses, can be found on the ITU website at http://www.itu.int/intset.