

INCENTIVES TO ENCOURAGE INFRASTRUCTURE ASSURANCE INVESTMENTS

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Introduction

When the Federal government and the private sector begin building the various public-private partnerships the Commission feels are necessary to assure the availability of critical infrastructures, the range and scope of financial incentives will become important items to be negotiated. The Commission found that 95 percent of the critical infrastructures themselves are owned by entities other than the Federal government, and it is natural to assume that they will be expected to pick up the large majority of the costs for maintaining and assuring access to these infrastructures.

A significant problem with paying for the necessary steps to protect the critical infrastructures is based on a historical paradox of economics called the “tragedy of the commons” in which no particular person or entity has a direct interest (or responsibility) for bearing the costs of the common good (common welfare, common defense, etc.), but in which all persons or entities suffer if these costs are not borne. With the inter-dependencies between and among the critical infrastructures themselves, the danger is even more acute because a failure in one can cascade into losses which affect many owners and operators and their customers.

Based on extensive discussions with the private sector, the most prudent course of action is the voluntary approach to public-private partnerships. If, after a few years, it is clear that voluntary measures are not working, further incentives can be considered.

As recent experience has revealed the new vulnerabilities in existing security arrangements, infrastructure owners have stepped up their efforts to better secure their properties by tightening policies and practices, expanding and upgrading the quality of their information technology personnel, and investing in R&D (sometimes jointly with Federal agencies), technologies and equipment to secure their operations and facilities.

While recognizing this increase of private sector efforts in recent years, a package of actions can be developed to accelerate and broaden these efforts and otherwise help make them more effective. This package includes initiatives to heighten awareness among infrastructure owners and the public in general to current and prospective risks to the critical infrastructures, to strengthen education and training of infrastructure assurance personnel, to promote a two-way sharing of information between infrastructure owners and government agencies, to sponsor R&D for effective technology and practices and to make affordable tools and methodologies available to infrastructure owners and others in the private sector.

It will take some time to determine whether market forces, enhanced by these government actions, will produce security arrangements in the infrastructures adequate to meet those needed to achieve national policy objectives. In the interim, identified gaps in security arrangements may need to be eliminated faster than market forces dictate. In addition, there may exist other

situations where owners of certain infrastructures will conclude their security arrangements are adequate, in contradiction to the government's belief they are insufficient for purposes of national security and economic well-being.

The Commission believes there is a role for financial incentives under several scenarios, and that the Federal government should be prepared to invoke them as circumstances require. Thus, the purpose of this paper is to examine the general type of incentives which have been used historically for other purposes, and which may be applicable to infrastructure assurance. For a more detailed survey of the technical and legal aspects of various financial incentives, a study was prepared for the Commission by KPMG¹ and is a companion document to this paper.

Types of Incentive Tools

There is ample precedent for using incentives to encourage owner-operators to pay for infrastructure assurance measures. For example, depreciation on investments made to secure infrastructure properties is already deductible expense on business tax returns. Thus, to a certain extent, the government already shares the cost of infrastructure assurance investments with business entities. The incentive tools available to the government include:

- **Grants:** The government could encourage infrastructure investments by extending grants to entities for investments. The grants could be percentage-based for the investment's costs, but the most common approach in the past has been to provide matching grants to the assisted entity. This type of arrangement was used in the Civil Defense Act's 50/50 matching grant provisions for state governments to plan and prepare for various emergencies and disasters. The Federal Emergency Management Agency (FEMA) administers this type of grant program, most often providing support for the construction and equipping of local emergency operations centers.
- **In-Kind Reimbursements:** Instead of providing a grant of money, the government can make available to, or transfer ownership of, equipment, technology, buildings or real estate. For example, the government might grant rights to firms or institutions in an industry to use facilities on former military bases which remain under government ownership.
- **Assuring Demand for a Product:** Financial incentives can be offered to encourage firms to undertake or continue producing equipment and technologies. The government guarantees to purchase a certain volume of such items, and to do so even if the government has no immediate use for these items and must store them. Such purchases

¹ Government Incentive Tools, KPMG Peat Marwick LLP., 1997.

have been made by the Defense Department under authority and funding of Title III of the Defense Production Act (DPA).

- **Tax Credits:** Tax credits equal to all or some part of the cost of an investment can be offered to a firm. Such credits reduce tax liabilities on a dollar-for-dollar basis. Depending on the size of individual credits and the extent of their use, they can result in large cost savings for those receiving them. Tax credits are of value only to entities subject to Federal income taxes, and who may have a Federal tax liability.
- **Accelerated Depreciation:** Investments to secure the infrastructures can be encouraged by providing firms the option of depreciating such investments on an accelerated basis. Concentrating depreciation deductions over the relatively near-term reduces pre-tax income and thus the tax liability of a firm. Moreover, since actual depreciation on the property is occurring less rapidly, firms would use a slower depreciation method on their financial accounting statements. Accordingly, the firm's pre-tax income on these statements is higher than on its tax return. With its tax liability diminished, its net income on these statements is higher than without the accelerated depreciation allowance. This tax treatment will not produce these results for firms with no pre-tax income, or no Federal income tax liabilities.
- **Tax-Exempt Bonds:** The Federal government *could* authorize firms to issue bonds for those whose interest payments would not be subject to Federal income tax. Thus, firms issuing these bonds could borrow at below-market interest rates. Such bonds would be similar to bonds issued by states and localities. However, to the Commission's knowledge, the Federal government has never authorized the issuance of these types of bonds.
- **Direct Loans:** The Federal government can provide assistance by extending loans directly to parties making the infrastructure investments. Under such a program, a pool of funds is set aside for lending. After loans have been made up to the limit of the pool, new loans can only be made with funds obtained from the repayment of outstanding loans. Interest rates on such loans are generally set at levels only fractionally above what the Treasury pays on debt it issues of the same maturity, and just enough to cover all administrative costs. Thus, interest costs to borrowers are reduced relative to what they would have to pay on the open market. The reduction is highest in the case of firms with relatively low credit ratings. In addition to lowering borrowing costs, direct loans provide credit to borrowers that have only limited access to sources of funding in the private market. The subsidy obtained by private borrowers from these loans is reflected as an expenditure in the Federal budget.
- **Loan Guarantees:** Another way to encourage investments in infrastructure security would be to guarantee loans arranged to finance such investments against default. As with direct loans, loan guarantees reduce interest costs to borrowers and provide an added source of credit. The extent of the incentive thus provided depends on a firm's credit rating and access to credit sources. The poorer the credit rating, or the less access to

credit sources, the greater is the assistance. Loan guarantees are administered by agencies under programs that specify terms and conditions under which guarantees are to be extended. A ceiling is typically placed on the volume of loans that can be guaranteed under these programs. The amount of reduction in interest payments obtained by the assisted entity is, as is the case for direct loans, reflected as an expenditure in the Federal budget.

In some cases, more than one of the tools described above might prove suitable for encouraging an investment expenditure, and different options will be more appropriate under some circumstances than others. It is necessary to have detailed knowledge of the specific type of investment, the desired percentage, the timing of the assistance to be provided, and the specific circumstances of the entity being assisted to make that determination. If, for example, the objective is to “front-load” the assistance, grants, tax credits or accelerated depreciation schedules will serve better than loans. The former will generally also serve better if the objective is to cover a major part of infrastructure assurance investment costs.

Tax credits and accelerated depreciation allowances are obviously of no benefit to an entity not subject to Federal income tax, or to an entity that *is* subject, but has no taxable income. Direct loans and loan guarantees spread out the assistance over time. As noted, they generally extend greater assistance to entities who have relatively low credit ratings and limited access to credit sources.

Market Forces and Investment Decisions

The Commission has, in many forums, stressed its strong preference for allowing market forces to be the prime driver for encouraging infrastructure owners to better secure their infrastructure properties. The owners have a vital stake in maintaining security arrangements that enable them to serve their customers in an effective and dependable way, thus meeting the competition of the market place, and also to protect their employees and other valuable assets.

Market forces can influence infrastructure assurance investments in very different ways. In the financial services industry, high security is expected by customers, and a vital component of doing business. The same can be expected in industries where there are economic benefits to either operating securely or having secure mechanisms for exchanging information. The opposite could occur in other industries where customer expectations may be lower, and investments in security are correspondingly low. This is because in some competitive and deregulated environments, security services are viewed purely as an overhead cost rather than a revenue-generating investment. It may be to a firm’s competitive advantage to keep costs low and take the risk of not having the necessary security measures.

Owners must deal with some uncertainty in making decisions on securing their infrastructure properties. They must also determine the nature of the risks they face, their vulnerabilities in the

face of these risks, and the means available to reduce these vulnerabilities. Finally, the decisions must be made in an environment of many competing interests for the firm's financial resources.

Businesses generally use three basic principles to guide investment decisions:

- They invest to stay in business and survive, and this is seen as a cost of doing business.
- They invest to gain a competitive advantage.
- They invest to reduce cost and increase return.

The rationale for making the necessary infrastructure assurance investments must be made most strongly on the first point, because of the consequences to the enterprise if an infrastructure-related event causes an interruption in the revenue stream which may be difficult to recover from. Creating a climate of action requires that the possible consequences or impacts to business objectives be *described* or *measured* along with their *probabilities* and *expected frequency*. Furthermore, the actions needed to reduce the consequences of negative events to business objectives need to be well-defined and costed out. It will also help if the necessary actions are perceived as either affordable or part of due diligence.

Finally, infrastructure assurance investments related to crisis management and restoration are most likely to occur under the following conditions:

- The cost of prevention or mitigation (of an adverse event) are not affordable or tools to prevent them are not available.
- The possible range of plausible events or consequences are not predictable.
- Adequate knowledge or experience from previous events is available to enable crisis management or restoration to be effective.
- Speed of restoration is perceived as a critical element of customer service.

Strategies and Options for Using Incentives

Entities can, and will, allocate funds for infrastructure security when their assessments convince them of the need. Such assessments are often based on past experience. They are also made when plausible information is made available to them of new risks and changed conditions. Inevitably, there tends to be some lag between a perceived risk exposure from unanticipated

sources, and the moment at which firms respond by adjusting their security arrangements. Just because owners have not put in place all arrangements necessary to secure their properties does not mean they will not eventually do so.

In arriving at such a conclusion, it is important for the Federal government to recognize the difficulty in identifying investments that will clearly *work*. Thus, we need to proceed carefully in deciding to what steps infrastructure owners take to make specific investments, in order to avoid having the wrong *cures* which may prove counterproductive and wasteful.

The government has six main options for inducing infrastructure owners to make the necessary security investments. They are listed here in order of preference.

- The first is to have companies make the right investment decisions simply on the basis of common sense, and as a function of staying in business.
- The second is to use education and awareness to encourage them to adopt and comply with voluntarily-established and accepted standards. This is because it is in their own vested interests to assure reliability of delivery of services to their customers. The reason for making the necessary security investments ultimately has to do with the need to assure business operations and manage overall business risk, a key component of which is customer confidence. Government can play a key role here by communicating the nature and scope of potential new risks and their ramifications.
- The third is to appeal to their sense of civic duty, by calling upon owners to make investments for either patriotic reasons or for the public good. Government can support this approach by assuring a sense of a level playing field in a return on public good will.
- The fourth is to enact market incentives. For example, as a customer, the Department of Defense has agreed to pay the incremental costs for the security-specific features it has needed in its purchases.
- The fifth is to use incentive tools directly as described previously.
- The sixth is for government to enact laws or regulations to mandate compliance with specified standards.

Reliance on education and awareness and/or voluntarily established standards is a much preferred beginning. This alternative is most consistent with the Commission's general view that since the great majority of infrastructure properties are owned by either private firms or state and local governments, the necessary actions and decisions should be taken on a voluntary basis. The Commission does recognize the inherent political implications that if moral persuasion is applied quite intensively, or if encouragement is given in the form of veiled regulatory threats, such actions may be coercive enough to border on being mandatory in nature.

In a world of pervasive change, legislation and regulation would likely take too long to adjust to the dynamic and changing environment. Only if education and awareness do not appear to be working, or working rapidly enough, then the real choice is between the use of incentives or regulations. Several important infrastructure sectors (e.g. banking, and air transportation) are already heavily regulated, and a modification of regulations where they already exist might prove an acceptable means for assuring necessary investments. Beyond such situations, the Commission expresses a strong preference for using incentives to avoid placing the burdens and costs of a regulatory framework on infrastructure owners not currently regulated.

It is important to stress that in addition to the budgetary considerations mentioned earlier, other important reasons argue for using financial incentives sparingly, and then only after other acceptable methods have been thoroughly tried and appear not to be working. Two such reasons are equity and economic efficiency.

With respect to equity, some infrastructure owners and their customers will cover the full cost of securing their infrastructures (perhaps, because they are required to do so by government regulation). Conversely, infrastructure firms (and indirectly their customers), would not if they were to receive government financial assistance. This difference would arise either because the perception of risk exposure of those *not* receiving assistance and their preferences for avoiding risk align with the government's, or because they have to conform to government regulations. Those receiving assistance, would either be in disagreement with the government as to the probability of the risk facing them, or have a different preference toward risk. These differences might be expressed in terms of the investment not being cost effective, meaning the present value of potential loss to be avoided by having the added assurance provided by the investment does not equal the current cost of obtaining that assurance.

However, the argument is not whether the firm would benefit directly and benefit more than other entities from having the security measures the government feels are needed. It is the firm's assets, its employee's safety, and its ability to earn revenues and maintain its customer base that are to be secured. Thus, the firm stands to lose proportionately more than others that would be secondarily affected if the risks were to become reality. This particularity of benefit and the investments financed with government assistance will be held and used by the firm rather than by the government contrasts with the case of national defense where tanks, planes etc. are held and used only by the government. That makes less applicable the argument of investment as a public good which should be paid for out of public funds.

On the matter of economic efficiency, the provision of financial assistance to some infrastructure firms while others receive no (or proportionately less) assistance, would not only cause inequities, but would also cause economic inefficiencies by distorting the relative prices of products and services produced by infrastructure firms. The prices of goods and services in infrastructures whose firms cover the full cost of their own assurance out of revenues earned from sales to their customers would be made relatively high, while the prices of products and services of infrastructure firms that receive government financial assistance would be made relatively low.

The products and services of infrastructures receiving assistance being made relatively cheap, would be used to a greater degree, while products and services of sector firms not receiving assistance, being made relatively expensive, would be used to a lesser degree. Resources would be diverted from the latter sectors to the former for reasons that have no sound economic basis, namely the interaction between preferences of consumers and basic production capabilities of the economic sectors.

Conclusion

Use of financial incentives in various forms to encourage investments and other expenditures perceived to be in the national interest has been government policy during most of this century. The government could use these traditional incentive tools to encourage infrastructure owners to reduce important vulnerabilities in their infrastructure properties and to make a difference where necessary. The incentives should be offered quite selectively and used sparingly in this era of fiscal responsibility, and only after it is clear market forces, together with other recommended government initiatives (if adopted), will not cause infrastructure owners to take this action on their own in a timely way.

Effectively securing the critical infrastructures is the paramount objective. Thus, if the various recommended actions do not appear likely to get infrastructure owners to make needed investments, or if the owners move too slowly to make such investments, the use of incentive tools in amounts consistent with budgetary considerations is recommended.

As referenced earlier, if incentives are needed, the form in which assistance is offered should be decided according to the specific circumstances such as the nature of the investment to be encouraged (e.g. short-term or long-term), the percentage of the cost to be covered, the recipient's status regarding Federal income tax and other factors. Thus, they should be tailored either to specific sectors of the economy or individual industries.

The incentive tools under consideration would encourage infrastructure owners to make investments by reducing their costs. Accordingly, they either add to Federal expenditures or reduce Federal tax revenues. At a time of fiscal discipline and a political will between the White House and Congress for a balanced budget, the tools should be used sparingly and as a last resort.

As a closing item, the Commission would like to again express its strong reservation against additional or unnecessary attempts to accomplish infrastructure assurance objectives through the use of traditional regulation. The chances for success of a regulatory approach become limited in an environment which depends as much on the speed of change, spontaneity and creativity as the current information-based environment in which we live and work. In a world of new geography, disappearing boundaries and instant, real-time access to information, traditional coercive regulatory methods are too slow and cumbersome. Regulations may not have the same impact as they have in the past, and they could well become counter-productive.