

## **Messages to G8 Leaders: Nine Energy Policy Imperatives**

On June 10, a group of ten renowned energy experts from around the world including Dr. Masahisa Naitoh, the Chairman and CEO of IEEJ, proposed “Nine Energy Policy Imperatives” for consideration of Silvio Berlusconi, the Italian Prime Minister, who chairs the 2009 G8 Summit Meeting to be held on July 8 – 10 at L’Aquila, Italy. Ambassador William C. Ramsay, former Deputy Executive Director of IEA, and nine other experts shown below wrote that the raised issues are critical to finding a sustainable path for the world to the future.

Other renowned experts participated in formulation of the message are Guy Caruso, former Administrator of EIA/DOE, USA, Zhou Dadi, former Director General of ERI/NDRC China, Adrian Lajous, former CEO of Pemex, Mexico, Masahisa Naitoh, Chairman and CEO of IEEJ, Japan, Claude Mandil, former Executive Director of IEA, Francesco Olivieri, former Ambassador and G8 Sherpa, Italy, Anil Razdan, former State Secretary – Power, India, Adnan Shihab-Eldin, former Acting Secretary General of OPEC and Anatoly Torkunov, Rector, Moscow State Institute of International Relations, Russia.

The full text of the message is as attached.

Dear Mr. President

We are ten former civil servants from around the world who have collaborated or competed with each other in energy policy making for the better part of forty years. We have managed many of the world's institutions of global energy governance. We have many differences amongst ourselves, but have tried in the next pages to distill what we believe are common concerns that need to remain the focus of energy discussions even if national views differ.

None of us can subscribe entirely to the assembled materials, but all of us believe the issues raised are critical to finding a sustainable path for the world to the future and extending that vision and reality to more of humanity.

We submit this material knowing the extreme pressure of Summit preparations and that much of the negotiation and compromise is complete. Yet we hope our reflections will be of use to those who bear the burden of identifying and pursuing what can be done to best fulfill our citizens' hopes for what should be done.

Mr. President, we wish you and your fellow Summit partners all success in the Summit and the fulfillment of its promise.

Sincerely

*Signed*

**Guy CARUSO**

Former Administrator  
Energy Information Administration  
US Department of Energy  
Washington, DC USA

**Adrian LAJOUS**

Former Chief Executive Officer  
Petroleos Mexicanos  
Mexico City, Mexico

**Claude MANDIL**

Former Executive Director  
International Energy Agency  
Paris, France

**William RAMSAY**

Former Deputy Executive Director  
International Energy Agency  
Paris, France

**Adnan SHIHAB-ELDIN**

Former Acting Secretary General  
Organisation of Petroleum Exporting Countries  
Vienna, Austria

**Zhou DADI**

Former Director, Energy Research Institute  
National Reform and  
Development Commission  
Beijing, China

**Masahisa NAITOH**

Former Director General  
Ministry of Energy, Trade and Industry  
Tokyo, Japan

**Francesco OLIVIERI**

Former Ambassador and G8 Sherpa  
Ministry of Foreign Affairs  
Rome, Italy

**Anil RAZDAN**

Former State Secretary – Power  
Government of India  
New Delhi, India

**Anatoly TORKUNOV**

Rector  
Moscow State Institute of International Relations  
Moscow, Russia

## Nine Energy Policy Imperatives

- Markets must provide for competition and economic gain through optimum technology, production and distributional practices, but markets must also be tempered by clear policies and regulations to promote larger public goods – in particular security of supply, environmental protection and equity.
- Energy independence is unachievable. The notion that a country can insulate itself from international energy markets leads to decisions that are contrary to economic growth, energy security or the protection of the environment.
- Targetry is an essential tool for policy makers. But long term targets need interim measurement points to ensure the accountability of target setters and to provide essential guidance to the investors whose actions are essential to meeting the targets.
- Energy poverty is seen as a welfare loss. But the frustration and discontent of poverty and the proximity of corruption erode social structures and political fabric breeding extremism. Energy poverty is much more than an urgent welfare issue.
- Development assistance is insufficient to electrify the third world. To mobilize private capital, much more attention needs to be devoted to electricity market perfection – creating the conditions for self help and foreign direct investment.
- Energy/climate policy makers must draw on all carbon pricing policy tools. In a differentiated world, each national context requires its own solution. A global price for carbon, as with other tradable commodities will emerge from diverse markets.
- Carbon capture and storage (CCS) is intended to prolong the use of fossil fuels. If considerably greater effort is not deployed to demonstrate CCS, it will not be ready in time. Replacing CCS with other technologies will be very expensive – if it is feasible.
- The elements of an effective system of global energy governance are already in place. We need to make better use of what we have. Creating new institutions may satisfy political needs – but will only serve to dilute and distract already limited resources.
- Our own electricity and gas grids are an increasing source of energy insecurity due to a lack of regulatory clarity and public support. Efficiency opportunities abound in all of our countries. These are things we can fix at home at little expense – but we don't.

*Item 1 - Now is not the time to question reliance on the market forces of competition and economic efficiency. Governments should now recognize the need for clear guidance to those forces and should collect the data necessary to monitor them.*

If governments do not provide public policy guidance and stable regulatory signals to businesses about how they can do well by doing good, market forces alone cannot be counted upon to deliver other key public policy priorities – especially security of supply, environmental objectives and equity. This is not the time to question market forces – this is a time to guide their awesome strength with clear public policies.

The banking and subsequent credit crisis have brought into sharp question the extent to which the financial sector should have been – and should be subject to greater regulation. In July of last year, oil market analysts argued about the extent to which speculation was causing oil and other commodity prices to spike. We have seen a shift in global thinking since that time towards greater conviction that speculation was a dominant feature last year. But nobody had the data necessary to settle the argument.

In the past three decades, countries of the OECD have gotten largely out of the business of grid energies, leaving to companies the pursuit of greater economic efficiency, relying on the strength of market forces to guide corporate decisions. Increasingly, electricity customers have become accustomed to large system disruptions as black and brown outs have cascaded across nearly all our countries. Earlier this year European gas grids were shown to be inadequate to deal with a cutoff of Russian gas through Ukraine – even though there was no real shortage of gas in world systems. Necessary infrastructure was not in place.

In the third world, electrification is not keeping pace with demand and welfare losses are accumulating. Why hasn't the private sector stepped up to the plate to invest in electricity production, transmission and distribution? Can the emerging economies count on the market to resolve their problems?

All of these events are raising questions about whether our abiding confidence in the positive effects of market forces are well-placed. Or whether countries skeptical about market forces should rely on them at all.

This page starts from the practical premise that most states will never have the resources necessary to take on sufficient infrastructure spending by themselves. And official development assistance has proven it is not up to the task either. It is essential to motivate private capital to shoulder these burdens.

But private capital is driven by profitability and returns to shareholders – not security of supply, not environmental objectives and least of all by distributional public policy objectives.

But electrical companies will build peak capacity into grids if rates will reimburse the investment. Gas companies will debottleneck gas grids if there is a commercial motivation for doing so. Power generators will turn to more efficient combustion technologies or lower carbon options if they are motivated by a price of carbon in the marketplace. Independent power producers will look at commercial opportunities in emerging nations if a well-regulated market makes it possible to earn a return on investment.

Public policy makers must identify their public policy priorities as clearly as possible. These priorities must be enshrined in laws, regulations and practices to provide guidance and motivation to the private sector. And the private sector should be held accountable for responding to the policy objectives – once the regulations and implementing measures are in place. This will require that governments have the ability of oversight and have at hand sufficient data to evaluate the state of the market.

Our citizens will not understand that we have confronted such major market failures, destroyed value and lost welfare without having learned the right lessons and reacted.

*Item 2 - Security of supply cannot be assured without well-regulated, well-integrated, transparent, competitive markets.*

In an open global economy, importing energy is not a problem in itself – so-called energy independence is not only unachievable for most of the developed world, but there are also clear examples where the use of import dependence as a criterion leads to decisions that make no sense with regard to economic growth or the protection of the environment. The false notion that a country can insulate itself from international energy markets. It cannot. The concept of energy independence is most often promoted by groups with domestic interests requiring some degree of promotion or protection. Such policies lead less to greater energy security of supply for consumers than they do greater security of demand for domestic producers. One such example is the very costly development of first-generation biofuels with very low green house gas emission profiles.

The risks for energy security have three origins: the first is low investment, which means that capacity in every energy sector is either under strain or inadequate; the second is lack of flexibility and choice and the third is lack of solidarity when a supply disruption occurs. Governments can play a major role, albeit not the only one, to mitigate each of these three risks.

Firstly, low investment: while it is not a government's task to invest in businesses, it has to make sure that the investors are willing to put their money in the energy sector. This is even more important in today's times of credit crunch, which is resulting in concerning delays and cancellations. Governments need to be clear about their environmental objectives and should ensure a stable and predictable regulatory framework, including a mechanism to price CO<sub>2</sub>. Electricity and gas transmission and distribution networks, which are natural monopolies, require attractive tariffs and may deserve public spending: yet to date, regulatory frameworks for grid energies do not provide sufficient guidance on security of supply, environmental policy objectives or social equity.

Second, flexibility and diversity. Here the role of governments is to make possible what is needed, and to make it understood by public opinion which needs to make informed choices between liquefied natural gas terminals and piped gas, whether to support nuclear power, to accept sugarcane ethanol imports and develop cost-effective renewables and their appropriate grid infrastructure.

Third, solidarity. Advocating energy solidarity is not being naive: it has proven to be possible and effective in the oil domain, through IEA mechanisms. Something comparable should be developed in the electricity and gas sectors, at least at a regional level and carefully tailored to the important differences between these commodities. Greater security in grid energies implies the development of excess availability (e.g. through interruptible supply contracts), to increase transmission capacity in order to channel energy from where it is available to where it is needed, and to agree on emergency mechanism with immediate decision-making process. A strong political will is needed to reach these agreements!

Finally, no energy security policy would be comprehensive without taking maximum advantage of the most secure and cost effective energy - efficiency. During their 2008 Summit in Japan, G8 countries adopted in their Communiqué the 25 energy efficiency proposals made by the IEA requested by the 2005 Gleneagles Summit. These proposals should now be implemented.

*Item 3 – “Unrealistic political targets and policy ambiguity confuse markets”.*

Targetry has become an effective tool for conveying a political message to our populations – but it can be abused. In 1979 Members of the International Energy Agency committed to reduce their oil imports to 26 million barrels per day (mb/d) by 1985. The Iranian Revolution the same year obviated the need for those targets. The world's rich countries have over time accepted a target of spending 0.7% of GDP (originally gross national income) on official development assistance. In the September 2000 UN Millennium Declaration, 170 heads of state and government established 8 Millennium Goals to be achieved by 2015 – one of which addressed mitigating greenhouse gas emissions.

More recently, concern about climate change has led to a number of other targets being set. The Kyoto Protocol calls for a collective reduction by signatories of greenhouse gas (GHG) emissions by 5% from 1990 levels by 2012. Other climate change targets include EU commitments known as 20-20-20 in 2020. These imply a 20% reduction of energy consumption, reduced GHG by 20% and the penetration of renewable energy in the primary energy mix of 20% - all this by the year 2020.

President George Bush, in his State of the Union address in 2008, committed to producing 35 billion gallons of biofuels by 2017 – a five fold increase in corn ethanol. The Department of Energy's Energy Information Administration still does not reflect those gallons of corn ethanol in its projections.

No one will challenge the need to build public awareness at the beginning of a policy campaign or to show solidarity with public opinion where policy makers are trying to catch up with it. But the quality of the commitment or target is only as good as the concrete actions taken to achieve it. Unfortunately, long timeline targetry has become a favorite tool for politicians (and policy makers) that too often has the purpose of short term political expediency without the risk of having to make unpleasant short term decisions.

When politicians announce targets further into the future than ten years, it is at virtually no risk. All democratic political cycles are shorter than that and the politician making the commitment will have been re-elected or not on other criteria. The commitment in and of itself serves no purpose. Career policy-makers are guilty of doing the same thing as before the target is due, the transient political master has moved on.

Investors who are seeking to understand the policy and regulatory context for their investments will await some concrete sign that a time-distant target will actually be implemented. A recent study by the International Energy Agency entitled “Climate Policy Uncertainty and Investment Risk” IEA 2007, demonstrates a 40% higher cost of investment in power infrastructure and 10% higher electricity rates to consumers solely as a consequence of ambiguity in climate policy.

Investors in additional refinery capacity are baffled by US and EU targets for biofuel production. Will additional refinery capacity be required or not? Farmers and biofuel distillers need to make decisions based on the quality of the target and political commitment to achieving it. Today, over 16% of US ethanol capacity is shut down because of misreading the validity or consequences of distant targets.

Politicians will never stop using targetry to convey political messages or respond to their electorates. It is an essential part of any policy makers' tool bag. But there is at least one measure that might improve the quality of the targets and reduce the ambiguity for those who need policy and regulatory stability: the use of clear interim targets that must be attained within the current political cycle – or even just identifiable process targets if concrete results are not possible in the short term.

*Item 4 – “Energy poverty is not only about individual welfare. It ultimately determines political cohesion and state security.”*

The 2000 UN Millennium Declaration set the reduction of poverty by 50% by 2015 as the first of its eight goals. But this goal is unattainable if energy poverty persists. Nearly 1.6 billion of the earth's people have no access to modern energy services. Estimates by the International Energy Agency suggest this number will drop over the next 20 years in relative terms, but still leave 1.4 billion people behind. This is an unacceptable outcome.

Those populations subsisting on traditional biomass fuels face another challenge. More women and children die prematurely of respiratory complications from the inefficient use of traditional fuels than die of malaria each year. And as traditional fuels return to cramped households in cities, because kerosene and LPG are too expensive, the toll mounts. The majority of these people are in Africa and South Asia and their voices are often unheard.

Elsewhere, where governance is weak and resources are poorly allocated, rural and peri-urban populations without access to even basic energy services can see that they are marginalized by their governments while other groups get ahead. This kind of frustration and discontent seldom has an institutional or political means of expression except hostility among underprivileged groups who have to struggle among themselves to feed their children. Sectarian violence is generally born of competition for resources and can seldom be explained initially by conflicting religious beliefs. Most of these struggles too, go unseen around the world, but the suffering among these populations eventually breeds political radicalization as nothing else seems to work.

In resource rich countries, the energy and economically poor have the additional burden of production facilities and pipelines or railroads criss-crossing their lands, often disrupting their traditional livelihood. They are not the beneficiaries of these resources as all natural resource royalty checks are payable to the central government. These populations in resource rich countries are generally witness to the worst consequences of poor governance – rampant corruption. Beyond the suffering and neglect already felt by these people, corruption acts as an anger multiplier. It is corrosive of social fabric and eventually leads to political instability.

In all three of these situations, there is a huge welfare loss to very large numbers of the world's citizens. That is motivation enough to mobilize the extension of energy services. But beyond the welfare costs, the eventual social and political instability has significant implications for the stability of resource supplies as we have witnessed on multiple occasions in many countries where oil and gas exports have fallen victim to social unrest. And as new discoveries are made elsewhere in the developing world, the next victims of national instability through poor governance and corruption can already be identified. A last point - the resource curse is real but it cannot be laid solely at the feet of poor national governance.

Finally, beyond the suffering of poor populations or the frequent instability among all too many oil or gas exporters, some citizens of these countries have found that the only way to bring attention to their plight is by exporting their anger. Populations tested beyond their limits are fertile ground for political extremism and terrorist recruiting.

We would view energy poverty as “merely” a welfare issue at our own peril.

*Item 5 – “The most difficult global challenge in energy supply is the electrification of developing countries.”*

Electricity is the life blood of our societies. Without electricity, no light and no internet: you cannot read and learn. No refrigerator: you cannot keep fresh food, drugs and vaccines. No motor: you cannot start any craftsman’s activity. A community without electricity stays sidelined on the road to development.

Electricity use is incredibly uneven across the world. World average consumption per capita (2006 figures) is 2 659 kWh. But it is 8 381 kWh in OECD countries, 667 kWh in non OECD Asia and 557 in Africa: on average an OECD inhabitant consumes as much electricity as 15 average Africans.

The imbalance is more striking at a country level: within the OECD, the US citizen consumes 13 515 kWh, the Turkish one 2 053. Within Africa, the South African citizen consumes 4 810 kWh (more than twice as much as a Turk), while an Eritrean consumes 49 kWh meaning one US citizen consumes as much electricity as 270 Eritreans. This is a stimulus to migration, war, riots, which plague the have-nots and also the haves. The Millennium Development Goals included an ambitious electrification target; we are very far from achieving it. How is it possible to improve this situation?

Building generators, grids, solar panels and dams is expensive. Foreign aid may initially be needed, and the economic crisis should not be an excuse for reducing it in such a vital sector. But money alone will not solve the problem. The way money is spent and the way money is received are important too.

Always overlooked in discussions of poverty and electricity is the absence of a market. Development assistance is ultimately not going to electrify the third world. The private sector will need to be mobilised to do that – but that won’t happen before there is a viable market. When line losses and theft are controlled, meters installed, rates paid, and a steady regulator is overseeing the market, investors will come. People living in cities know full well electricity will cost money. But so does kerosene or candles. Only politicians promise free power and so ultimately it is free – because there is none.

Where public assistance is the only first option, there is the risk that both public donors and recipients of public spending have a shared objective: to show results. The result is generally investments in brick and mortar facilities, which can be seen and pictured. But what about maintenance? About spare parts? About training? About custodians? Sub Saharan Africa is a museum of broken or idle pumps, generators, missing solar panels or copper wires, light poles without a bulb.

If a market is not built alongside the development assistance, it will fail as soon as the funding dries up or moves to another priority. More attention needs to be devoted to helping developing countries get their markets in order. All countries have some form of electrical sector. Getting that market more commercially viable is not very sexy, but it will establish the disciplines necessary to sustain investment in electricity whatever its source.

Major US and European companies have had bad experiences investing in power projects abroad – in Latin America, India, Central Asia and perhaps now in Russia. Invariably the immaturity of the market and instability in investment conditions (and perhaps a certain naivete) have doomed their efforts.

Greater focus on improving the quality of the host market may prevent problems in future and may accelerate more global citizens’ access to electricity.



*Item 6 – “The Carbon Tax/ Cap and Trade debate is tantamount to fiddling while Rome burns”*

Everyone knows that carbon must have a price. The question is how to identify the right level and impose that price. The price is intended to promote efficiency, discourage fossil fuel use over time and stimulate alternative low or no-carbon fuels that are themselves environmentally responsible. The debates on how to levy the price range between proponents of carbon taxes and those who would cap and trade. The debate should not serve as a substitute for action.

Many are convinced a clear carbon tax is the only option. But when the price of oil moved from \$25 a barrel to over \$100 a barrel, OPEC effectively imposed a carbon tax on the order of \$100 a ton. The impact on oil consumption was minimal. Rich consumers paid no attention to gasoline in their budgets, emerging countries powerful growth trumped higher energy prices and poor consumers throughout the third world were protected by subsidies. There was little or no consumption response to the effective tax until oil prices soared over \$100 per barrel.

At the same time, the European Trading System (ETS) was put in place and carbon developed a trading price. The marginally higher cost of coal-fired generation of electricity in Europe began to be visible when compared with the US. But the carbon contracts are poorly drawn and the price collapsed to \$8 per ton in February of this year. Much has been learned in the ETS that will inform new cap-and-trade initiatives.

Meanwhile appliance standards and labeling were making a difference in appliance efficiencies in China and India – and new building standards are also being applied. Regulatory measures, while unpopular and always flawed have dramatically improved energy efficiency in regulated sectors and demonstrated the power of informed consumers.

There is no single best way to put a price on carbon. Each of the tools (taxation, trading, regulations) is adapted to different circumstances.

In power generation, companies will be very sensitive to a carbon tax and will be motivated to find low carbon solutions or verifiable offsets. Trade sensitive items require a different approach. Several in the G8 promote sectoral approaches in energy intense industries – iron, glass, aluminum, petrochemicals, cement. Global standards can be set in these sectors that are measurable, verifiable and increasingly homogeneous around the world. Imposing national-level carbon taxes in tradeable borders on politically impossible nearly everywhere, or the tax is compromised by cutouts and exceptions. The idea that these carbon taxes could be harmonized across countries stretches the imagination.

Endless debate about one solution or the other merely puts off concrete actions. Regional carbon markets with trading bridges will eventually trade out major discrepancies. Regulatory measures in one market to achieve energy efficiencies will actually improve competitiveness and be imitated in other markets.

Just as policy makers should not rush to pick favorites among lower carbon energy sources, they must choose those that will work in their national context to achieve the economic, security, environmental and distributional objectives of balanced energy policy. These same policy makers should not focus on a single method for pricing carbon – but drawing on all the carbon pricing tools, identify what will be most efficient in their national context and what could contribute to building towards a global price for carbon, just as there is for oil, gold or any other freely traded commodity.

*Item 7 – “If Carbon Capture and Storage doesn’t meet expectations – Plan B will be a problem”.*

Carbon capture and storage (CCS) is not a done deal. It figures importantly in all our forecasts for a sustainable future and we can claim the technologies exist, but it is not a done deal. G8 countries committed to announce 20 full scale demonstration plants by 2010. At roughly \$1 billion in incremental funding for each project, countries will have to identify \$20 billion for these demonstration projects. To date, real money announcements add to roughly \$8 billion, not nearly enough but still some reason to celebrate.

But much hinges on CCS taking as much as 5.3 gigatons per year out of our emissions by 2050 from the power sector and heavy industry – according to the International Energy Agency (IEA). Currently, CCS projects around the world are removing 5 million tons per year of CO<sub>2</sub> for re-injection in oil and gas fields. The economics of re-injection are by far the easiest application of the technology, but we need over 1000 times that much annually by 2030.

If CCS is not available, what are the options for de-carbonizing the fuel mix by a similar amount? Each of the lower carbon technologies, e.g. gas, nuclear and renewables, would have to compensate. The IEA has tried to model the implications of this scenario in the 2008 Energy Technology Perspectives book done for the Hokkaido Summit. It found that without CCS, overall mitigation costs were 70% higher than the reference. This reflects the higher costs of deploying vastly greater volumes of renewable and nuclear energy, if indeed this is possible.

There are ways to accelerate this process:

Focus has been on the power sector. Clearly power is a first priority, but nearly 50% of carbon sequestration must come from heavy industry. More work needs to be done on mechanisms to engage the energy intensive sectors of glass, steel, aluminum, cement, petrochemicals to begin large-scale CO<sub>2</sub> capture pilot projects in earnest. The initiative of sectoral GHG emission reductions efforts would lend itself well to generating a cost of carbon that would underpin the investments in CCS.

With billion dollar budgets for each project, as well as an urgent need to share information among early projects, there will need to be pooling of resources. This also means pooling of intellectual property and division of benefits. This form of collaboration has been practiced for decades in international fusion projects and technology collaboration in IEA implementing agreements. The new Global CCS Institute and the IEA can play an important role here and this might be a useful topic for the G8 Energy Minister’s announced Technology Platform.

Another option that has not materialized is clearly recognizing CCS in greenhouse gas regulatory schemes; efforts to date to make CCS projects eligible for the Kyoto Protocol’s Clean Development Mechanism have failed. There may be need for a Plan B which involves separate recognition amongst the Kyoto Parties that CCS requires new, dedicated provisions for financing and recognition in the UN FCCC framework. This should be a priority for the Copenhagen negotiators.

All elements of a sustainable scenario require more political will and resource dedication than has been mobilized to date. To lose a major component of a sustainable strategy puts almost impossible stress on all the others. Most technologies are already stretched to their technical limits and probably beyond their political limits in the sustainable scenarios. Carbon capture and storage is a very large part of the way forward and requires a commensurate commitment if it is to play its part. Finding a replacement for an unsuccessful CCS effort will be very difficult indeed.

*Item 8 – “Global energy governance needs work – but more institutions does not mean better governance.”*

The world is seeking to adjust its institutions for the governance of energy to reflect new global energy realities. Energy is now totally enmeshed in the search for sustainable development and abatement of greenhouse gas emissions. The epicenters of the production and consumption of energy are shifting towards emerging economies as energy consumption in the industrialized economies of the world reaches a plateau and begins to taper off. Hydrocarbons must travel greater distances to markets and questions of security of supply persist because of geopolitics, commercial disputes, natural disasters and technical fragility. Issues of transit are high on today's political agenda.

There are hundreds of institutions engaged in energy issues, but a very few dominate the global scene. They are OPEC, the IEA, the G8 and increasingly the IEF and G20. Important regional activities abound, particularly in Asia, e.g. APEC, ASEAN+3, Shanghai Group. Some countries are experimenting with a new institution dedicated to renewables (IRENA), while others still struggle to assert the authorities and principles embedded in the Energy Charter that boasts 51 members but weak authority after 13 years.

Recently, Russia's President Medvedev suggested the need for a new international charter for international energy co-operation. The Russian motivation is clearly driven by the persistent challenges in its relations with Ukraine as the major transit state for its gas to European customers. The complexity of that relationship is not the objective of this note. The question is whether another international organization is the answer to these and other problems.

At Russia's initiative in 2006, the St Petersburg G8 Summit announced a set of Global Energy Security Principles that in fact can be found in the recent Russian proposal. These were well negotiated principles hammered out by the G8 members, drawing heavily on existing bilateral and multilateral agreements including the Energy Charter. They have been shared with a number of emerging countries including China and India, but the latter have not yet endorsed them. At the Hokkaido Summit in 2008, the G8 submitted a self assessment of its Members own adherence to the St Petersburg Principles, accompanied by an overall IEA assessment.

The elements of international energy market governance are already in place – we don't need new ones. In answer to President Medvedev's concern about market discipline, for a start, G8 members have only to bring greater rigor and transparency to the peer evaluation of G8 countries' adherence to their own principles. These principles can be extended over time to other major trading partners, perhaps first via the G20. The quality of G8 member policies can be judged in the court of public opinion by the release of these peer assessments to the public.

Government bureaucracies around the world are already overstretched. Most national bureaucracies were created as domestic agencies that now are responsible for increasingly complicated, time-consuming international issues. The creation of a new international institution is too often undertaken as a political gesture, delaying or dodging more difficult policy actions.

Ref: « La Gouvernance Mondiale de l'Energie », edited by Cécile Kérébel & Jan Horst Kepler, *Les études*, Ifri, March 2009

*Item 9 – “Investment in the energy sector will have its greatest and earliest global payback in efficiency and strengthening energy grids.”*

Leaders seeking cost-effective targets of opportunity either in stimulus packages or prioritizing where to invest taxpayers money in the energy sector. The fastest pay-backs would be in upgrading and de-bottlenecking power and gas grids and in pursuing the multitude of efficiency opportunities waiting to be harvested.

*On grids:*

The recent crisis in European gas supply demonstrated the importance of interconnectivity in the greater European market. The shortfall of Russian gas was in some measure compensated where alternative gas had access to the markets – LNG, Algerian, Norwegian, Dutch, UK and Danish gas were able to take up some of the slack. A stronger draw on stored gas was able to compensate for another portion of the missing gas. But it became clear that a number of European countries had no access to either stored or alternative gas. These are mostly countries that were at the extreme end of the Soviet gas distribution system and have not yet diversified their supply options. This is a European problem that requires an European-level solution.

Around the world, inadequacy of gas grids impedes efficient use of gas as a supply option and stimulus to regional integration. In the Latin American Southern Cone, gas reserves are ample, yet limited pipelines have resulted in politics directing gas more than market forces. India struggles to get its own gas grid in place with indigenous resources stranded from the best markets and some gas fired capacity going without gas contracts. Japan introduces flexibility into its gas distribution by moving LNG tankers around its coast. Would inter-regional gas pipeline transportation provide a more economical answer if impediments to construction can be overcome?

We have a window of opportunity in temporarily lower global gas demand growth to put in place much needed infrastructure to de-bottleneck gas grids and provide much greater flexibility in dealing with supply stresses whether intentional, weather related or technical. As countries address more seriously climate change strategies, gas will come under pressure as the fuel of choice. Capacity will lag markets even more.

Electricity grids and in particular smart grids are in no better shape than gas. Demand for electricity-based energy services is expanding everywhere. Previously, small islands of electricity generation and distribution were relatively secure and stable. But as those small islands have converged into continuous markets, they have not established the high voltage links essential to sustaining reliability. Often, commercial considerations inhibit grid integration to the detriment of reliability.

Several factors are eroding the reliability of electricity supply world-wide. The first is the inadequacy of capacity additions to reflect the pace of growth in demand. The second is imposed by the near impossibility in some places to put in new transmission capacity due to popular resistance. A third is caused by the shift in the generation mix as countries seek to diversify into lower carbon alternatives. In particular the integration of intermittent power sources into national grids requires smarter, better interconnected grids. These investments are not being made.

NIMBY (not-in-my-backyard) has deteriorated to NOPE (not-on-planet-earth) because the public is not convincingly told of the need for gas and electricity energy grids. In Europe, only Denmark has been able to interconnect effectively with its neighbors because as an island, Denmark can run wires to its neighbors north and south - and fish don't vote. As a result, Denmark is able to arbitrate between wind power in Germany, CHP in Denmark and pumped hydro in Norway. Successes overcoming NIMBY should be shared.

Russian, Chinese, Indian and Brazilian grids all suffer the same challenges. Enormous distances only make matters worse. Japan is several islands composed of even

more electricity islands. Here, regional generators have not installed the capacity to trade power amongst themselves carefully segmenting the market for commercial advantage.

*On efficiency:*

The International Energy Agency (IEA) estimates that efficiency measures alone could reduce GHG emissions in 2030 by 15 giga-tonnes. But it has become clear the market will not deliver most of these cost-effective savings. End users do not have access to sufficient information to make informed choices. Split incentives in the market place such as the Tenant/Landlord issue mean builders will not invest in greater efficiency because the benefits accrue to the buyer. Often supply chains are fragmented and operators not skilled in making the efficiency connection. Energy budgets in major projects are often low priority and do not link energy efficiency and capital acquisition decisions. Perhaps the best approach internationally is to proceed sector by sector?

Why don't we label cars and houses as we label appliances? Consumers confronting clear efficiency information invariably give efficiency a heavier value. A study by IEA of 11 of its Members showed that over thirty years to 2003, efficiency reduced carbon emissions by 5.5 giga-tonnes per year. Yet today, the energy intensity of cement kilns varies from less than 3 GJ/tonne to over 4.5. The average fuel intensity of our car parks varies within the IEA between 10.5 liters/100 kilometers to less than 6.5.

At the Hokkaido Summit, IEA recommended 25 energy efficiency measures across 7 sectors of the economy. These measures, which have in large measure not been taken up could reduce emissions of CO<sub>2</sub> by 8 giga-tonnes by 2030. Energy utility schemes in the United States have resulted in consumers per capita electricity consumption per year to be 31% lower.

There is a multitude of such programs that are well known to analysts and policy-makers that have not been acted on. Some of these may impinge on life style or how people travel around their daily lives, but they are invariably cost effective over a short period, often at a negative cost.

There is no scenario for putting global energy consumption on a sustainable path that does not show a major contribution from energy efficiency – predominantly in end use. These are the lowest cost, most secure barrels of energy available – plus they emit no carbon.

Contact: [report@tky.iecej.or.jp](mailto:report@tky.iecej.or.jp)