



REPORT 2

POLICY FRAMEWORK ANALYSIS: PROPOSALS TO DEVELOP INCENTIVES MECHANISMS TO PROMOTE INVESTMENT IN EGS

ACTIVITY CODE: INVEN-1

**“PROMOTION OF FDIS IN THE SECTOR OF ENVIRONMENTAL GOODS AND
SERVICES”**

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ACRONYMS

AANZFTA	ASEAN-Australia-New Zealand Free Trade Agreement
ACCSQ	ASEAN Consultative Committee for Standards and Quality
ACFTA	ASEAN-China Free Trade Agreement
ACIA	ASEAN Comprehensive Investment Agreement
ACNNR	ASEAN Agreement on the Conservation of Nature and Natural Resources
AFAS	ASEAN Framework Agreement on Trade in Services
AEC	ASEAN Economic Community
AFTA	ASEAN Free Trade Area
AIA	ASEAN Investment Area
AJCEP	ASEAN-Japan Comprehensive Economic Partnership Agreement
AKFTA	ASEAN-Korea Free Trade Agreement
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of South East Asian Nations
ASCM	Agreement on Subsidies and Countervailing Measures
BIT	Bilateral investment treaty
BNDES	Brazil National Development Bank
BTA	Bilateral Trade Agreement
CCS	Carbon capture and storage
CIT	Corporate Income Tax
CSP	Concentrating solar power
DOE	US Department of Energy
EGS	Environmental Good and Service
EVSL	APEC's Early Voluntary Sectoral Liberalization
FDI	Foreign Direct Investment

FIT	Feed-in-tariff
GATT	General Agreement on Tariffs and Trade
GATS	General Agreement on Trade I Services
GPA	Government Procurement Agreement
GSO	Government Statistics Office
ICSID	International Center for Settlement of Investment Disputes
ICTSD	International Centre for Trade and Sustainable Development
IPR	Intellectual property Right
IRS	US Internal Revenue Service
ISPONRE	Vietnam's Institute of Strategy and Policy on Natural Resources and Environment
LAEP	Local Authority Environmental Management Systems and Procurement (EU)
LCR	Local content requirement
LGP	Loan Guarantee Program
MFN	most favoured nation treatment
MOIT	Ministry of Industry and Trade
MONROE	Ministry of Environment and Natural Resources
MOST	Ministry of Science and Technology
MTC	Manufacturing tax credit
NGO	Non-Governmental Organisation
NTPC	National Thermal Power Corporation (India)
OECD	Organisation of Economic Cooperation and Development
PPA	Power Purchase Agreement
PTC	Production Tax Credit
PV	Photovoltaics
PVMI	Photovoltaic Manufacturing Initiative
R & D	Research and Development
RPS	Renewable portfolio standards (US)
SCM	Subsidies and Countervailing Measures
TBT	Technical Barriers to Trade

TRIMs	Trade-Related Investment Measures
TRIPs	Trade-Related Intellectual Property
US	United States of America
UNCITRAL	United Nations Center for International Trade Law
USD	US Dollar
VAT	Value Added Tax
VEPF	Vietnam Environmental Protection Fund
VND	Vietnam Dong
WTO	World Trade Organisation

I. INTRODUCTION

The study presented in this document is a follow-up of a first study on “Tracking investment in EGS in Vietnam”.

The first study provided a baseline analysis of the existing investments in Vietnam and the policies Vietnam is currently conducting with respect to Environmental Goods and Services (EGS). It also analysed the existing international legal framework under which EGS’s policies may be conducted.

The first study concluded that the demand for EGS is growing in Vietnam, particularly in the sectors of waste management and water purification. This has already entailed an increased number of investments in these sectors and higher profitability levels. Yet, the overall level of domestic investment in Vietnam in the sectors of EGS remains somehow limited both in absolute terms and compared with the investments made in other countries. Therefore Vietnam’s official policy is to foster investments in this area. While the policy framework has been formulated in this regard, it must be improved to effectively attract more FDI in the sector of EGS. This implies developing specific regulations that will create incentives for investments in EGS.

The first study also raised stakeholders’ attention that when shaping national policies and incentives for the promotion of environmental goods and services, Vietnam must consider a wide range of international agreements to which it is a party, whether at multilateral, plurilateral or bilateral levels. This concerns both binding international instruments, such as the WTO and ASEAN, and non-binding ones which have a symbolic dimension and carry significant moral and political weight, such as the APEC. Clearly, the international legal environment conditions the policies that Vietnam may adopt in this regard. In principle, pursuant to the relevant international agreements, domestic laws and policies fostering the use of and investments in EGS cannot constitute useless barriers to the trade in a way that would contravene the objectives and rights granted to Vietnam’s trade partners under these agreements.

While the first study described the general context under which the policies promoting EGS must be realized, this second study is dedicated to the policies themselves. Firstly, it highlights the opportunities and challenges ahead for Vietnam regarding the promotion of investment in EGS. It then describes the policy tools available in this regard and it provide recommendations on the optimal tools that Vietnam could adopt given the international legal context. In this respect, the study also describes the experiences of other countries and it draws relevant lessons from them. The overall objective of this second study is to provide the stakeholders of Vietnam with relevant information and guidance regarding the measures Vietnam may take to foster the use of and investments in EGS in the light of the existing international practice.

This study is structured in three distinct parts.

- The first part briefly outlines the opportunities and challenges ahead for Vietnam regarding the promotion of investment in EGS. This part will mostly rely on literature review and the research carried out in the context of the first study. The opportunities that will be addressed are those that result from the conduct of a proactive policy fostering the use of and investments in EGS. They consist, among others, on the potential for increased economic growth, the spread of new technologies, the securing of new sources of energy and resilience towards possible over-reliance on fossils fuels. Other possible positive effects include a general mitigation of pollution, and the reduction of carbon emissions. As to the challenges resulting from EGS' policies, they are clearly related to the constraints provided by the international legal framework, the risks that new regulations impair industry competitiveness or that they overall increase the energy prices for industry beyond acceptable levels.
- The second part of the study presents the experience of third countries regarding the development of incentives mechanisms to attract investment on EGS. Three sets of policies are presented in more detail. These policies generally correspond to those that third countries pursue. The main policy tools addressed are 1. Subsidies, 2. Public Procurement and 3. Local content requirements. Each tool is extensively explained. Relevant experience, with respect to each tool was identified as follows: 1. Regarding subsidies, the experience of the United States and China is addressed. 2. Regarding public procurement, the study describes the experiences of the European Union, the United Kingdom within the EU, China, the United States and South Africa. Finally, concerning local content requirements, the experiences of China, Canada, India, Brazil and South Africa are described. The selection of the countries results from the quality of existing research and publications and their overall relevance considering Vietnam's realities as exposed in the first study. This second part of the study also briefly presents other policy tools that may have an impact on EGS, such as the use of tariffs, trade remedies, clean energy standards and certifications, the protection of intellectual property rights, and contract enforcement and land rights. Finally, this second part of the study will discuss the possible constraints that the existing international framework that was presented in the first study may impose on the use of the policy tools and instruments described.
- Based on the analysis provided in the first and second part, the third part will provide recommendations to Vietnam's stakeholders on the policy tools and regulations that Vietnam could consider adopting to promote the use of and investments in EGS, in line with Vietnam's Socio-economic Development Strategy for 2011-2020.

Overall, this second study is intended to provide a good overview of the current international research regarding the promotion of EGS in a specific country. Of course, as research progresses and experiences multiply, it will have to be regularly updated.

II. OPPORTUNITIES AND CHALLENGES AHEAD FOR VIETNAM REGARDING THE PROMOTION OF INVESTMENT IN EGS

II.1 Opportunities

The opportunities that may result for Vietnam from the conduct of a proactive policy fostering the use of and investments in EGS are well known to Vietnam.

Attracting more investment, particularly foreign investment, in EGS is expected to benefit Vietnam's environment and to assist the country in achieving its goals for green growth. EGS is also a sector which can promote economic development.

1) Environmental benefits

Regarding the environmental benefits, increased investments in EGS positively contribute to mitigate pollution, reduce carbon emissions and ensure the availability of essential commodities such as clear water and air. Furthermore, through increased investments in EGS in its territory, Vietnam may acquire new technologies, which would facilitate its securing of new sources of energy and resilience towards possible over-reliance on fossils fuels. Attracting new investments in EGS would also relieve pressure on the Vietnamese government related to public expenditures on environmental protection. As indicated in the first study, fostering a green environment and an industrial strategy promoting environmental goals is part of Vietnam's national strategy, as elaborated in several official documents and regulations, particularly the socio-economic development strategy in the period of 2011 – 2020.

Several other countries have also understood this well and are developing massive programmes to move towards more sustainable consumption patterns and the increased use of renewable energy in industrial production processes. In China for instance, *“concern exists that China's economic miracle will be hampered by environmental problems. Acid rain falls on one third of the Chinese territory, half of the water in the seven largest rivers is completely useless, while one-fourth of the citizens do not have access to clean drinking water. One-third of the urban population is breathing polluted air, and less than 20 percent of the trash in cities is treated and processed in an environmentally sustainable manner”*¹. Hence, the Chinese government has embarked on a large scale programme to fund environmental activities and to replicate the environmental regulatory regimes of the United States and Europe². China has also substantially invested in clean production initiatives through joint projects with several European countries and international organisations. For the same reasons as China, India also is concerned by its environmental degradation. The Global Environment Fund indicates that *“the need for pollution control technology is large and growing at a 10 percent to 12 percent rate annually”*³. Thailand, Korea, the European Union, the United States are all developing policies fostering the use of and investments in EGS as part of their environmental policies.

¹ See Global Environment Fund, “A Strategy for Investing in Emerging Market Environmental Industries », 2013, http://globalenvironmentfund.com/wp-content/uploads/2013/02/Emerging_Market_Environmental_Industires.pdf , consulted on 3 December 2014.

² Idem.

³ Idem.

2. Economic Development

In addition to the environmental protection goals, the first study has highlighted the economic benefits that may derive from increased investments in EGS. Demand for EGS is strongly increasing and the sector is expected to substantially grow in the near future. In Brazil for instance, the water/wastewater segment of the market is the largest sub-sector of the Brazilian environmental market, and is estimated to total more than \$2.1 billion in 2005 and it has been increasing rapidly⁴. In India also, “*estimates for the total market for environmental goods and services as high as \$10 billion, and growth is projected at about 10 percent rate annually over the next several years*”. “*The market for solid waste management goods and services in India ranges from \$2 billion to \$3.5 billion*”⁵. In China, addressing water treatment and supply issues is also a top priority, like in all industrialising countries.

Clearly, responding to the increased demand of EGS may foster the development of an industry which can also substantially contribute to economic growth. This requires that efforts are made not only to increase investments in the sector, but also improve the competitiveness of the EGS produced in Vietnam and provide an adequate environment to encourage and protect innovation and new technologies. Most of the emerging economies understood this. In Vietnam, as well, the Government realises the opportunities that may arise from increased investments on EGS and hence it identified the promotion of EGS as one of the solutions mentioned in the National Green Growth Strategy adopted in September 2012.

II.2 Challenges

The challenges resulting from policies promoting the use of and investments in EGS are related to the need to find the adequate combination between the objective to adequately respond to the environmental and economic development concerns, while at the same time complying with the international trade and investment agreements to which Vietnam is a party. The latter indeed condition the nature of the domestic regulation that Vietnam can take. Such regulation should not unduly restrict the market access rights and the investment-related rights accruing to Vietnam’s trade partners from these agreements.

Furthermore, while there is clearly a need to promote the marketability and competitiveness of EGS in Vietnam, it is important to ensure that the policy instruments that Vietnam may wish to use, do not in practice undermine the overall competitiveness of other non-environmental-related sectors. This would be the case if they add unnecessary regulatory burdens or lead to price increases of the energy available beyond acceptable levels. The European Commission for example has identified in particular three channels through which environmental policies create costs for European industry:

- “by changing the availability and price of inputs, such as the non-availability of certain dangerous substances or higher energy prices;

⁴ Idem.

⁵ Idem.

- by placing restrictions and additional burdens on the production process, such as limit values for emissions or risk-management provisions to reduce occupational health risks;
- by affecting the availability, performance and price of outputs, such as fuel efficiency of cars, design features to facilitate better waste management, or banning or taxing certain products that could be harmful for the environment or human health.⁶

The first two channels are viewed as mainly affecting European producers, negatively influencing their cost competitiveness on the European and third-country markets if non-EU industries do not face the same obstacles. The third channel prescribes the same obligations on European and non-European producers on European markets. It may nevertheless negatively affect performance of European producers on third country markets.⁷ It is thus important to be aware of these consequences and to take well informed policy decisions of which objective to favour.

Finally, it is also important not to create through governmental action undue market distortions that could impair the overall effectiveness of the markets concerned. In this regard, certain instruments, such as local content requirements, may be more distortive than others. For instance, the use of targeted local content policies by the Thai Government in its automobile sector led to a 77% decrease in the volume and value of imports of parts and components in each domestically assembled vehicle, thus inevitably affecting the final price and perhaps the quality of the vehicle.⁸

Clearly, the experience of other countries provides insightful guidance of which instrument to promote.

III. THE DEVELOPMENT OF INCENTIVE MECHANISMS TO ATTRACT INVESTMENTS ON EGS: THE EXPERIENCE OF THIRD COUNTRIES

Support mechanisms for manufacturers, consumers and providers of EGS that governments typically adopt include grants, loans, and loan guarantees; tax incentives; feed-in-tariffs, local content requirements; renewable portfolio standards; and pricing support. Such government support mechanisms are important for the success of EGS promotion in any country. This is the case for three primary reasons. Firstly, the energy sector generally suffers from two related market failures — the lack of internalization of negative externalities (e.g. greenhouse gas emissions) associated with the use of fossil-fuel based energy sources, and the lack of internalization of positive externalities (e.g. no greenhouse gas emissions) associated with the use renewable energy sources. Neither the benefits of renewable energy technologies nor the true costs of fossil fuels are included in their prices, making energy from renewable sources relatively expensive and fossil fuels relatively cheap. Standard economic analysis suggests that public intervention is

⁶ *Protecting the Environment and Economic Growth: Trade Off or Growth Enhancing Structural Adjustment*, European Commission, available at: http://ec.europa.eu/economy_finance/publications/publication7726_en.pdf

⁷ *Idem*.

⁸ Ad Hoc Expert Group Meeting on Domestic Requirements and Support Measures in Green Sectors, Economic and Environmental Effectiveness and Implications for Trade, UNCTAD, June 2013

warranted whenever the market fails to provide desirable public goods or to tackle various externalities.

Secondly, at the global level, subsidies for fossil fuel-based energy sources for instance are estimated to be around \$550 billion annually, subsidies for renewable energy are estimated to be \$43-46 billion.⁹ This difference aggravates the effects of the market failures and require more financial support toward EGS in order to diminish this disparity.¹⁰

Finally, the up-front capital costs related to the manufacturing of environmental goods and the provision of environmental services are quite high and consumers are generally not willing to pay a price that is high enough for manufacturers or service providers to recover any initial investments made in a workable timeframe (especially when cheaper, hence less environmentally-friendly, energy alternatives remain available). Consequently limited investment in EGS is made in the absence of some sort of government intervention. By providing financial support to those who produce environmental goods or provide environmental services, thereby allowing them to sell their products at lower prices, or instead to purchasers of such technologies, governments can overcome cost barriers and incentivize foreign investment in EGS, leading to the widespread use of EGS. Once renewable energy industries develop, it may be possible for manufacturers and service providers to be weaned off government support having become more self-sustainable. At present, however, the EGS industry has yet to reach maturity in countries such as Vietnam and continues to require government support in order to remain competitive.

In determining what mechanisms should be applied, it is worth looking at third countries experiences in using various incentives to attract foreign direct investment. The current structure of the global regime of such incentives should be analysed to understand which of these incentives create trade-distorting effects in the EGS industries, which of them are banned and how to use those than are permitted.

III.1. Subsidies

Due to the fact that producing technologies associated with renewable energies presents high cost barriers, many states have introduced mechanisms to subsidize the manufacturers or purchasers of the renewable energy or the providers of electricity generated by the renewable energy sources in order to enhance investments including foreign investment in this sector.

States provide support such as subsidies in order to incentivize investment in green technologies by subsidizing producers of environmental goods or services (i.e. solar panels and component part technologies), consumers of renewable energy, or providers of electricity from renewable energy sources (in any variety of combinations).

⁹ Arunabha Ghosh; *"Governing clean energy subsidies: Why legal and policy clarity is needed"*, ICTSD, November 2011; available at: <http://ictsd.org/i/news/bioresreview/117779/>

¹⁰

Subsidy is generally defined as a financial contribution made by (or on behalf of) a government or public body which confers a benefit to the recipient. Subsidies may include grants, loans, and loan guarantees; tax incentives; renewable portfolio standards; and pricing support. They can take on numerous forms and combinations.

1) The United States

The United States example focuses mainly on the solar energy sector.

The following information on government measures applied in the United States is mainly based on Simmons Zachary Scott's Paper entitled "Subsidizing Solar: The Case for an Environmental Goods and Services Carve-out from the Global Subsidies Regime".¹¹

The solar energy has been supported by the United States since late 70s. In 1978 the US have issued the Energy Tax Act. It offered tax credits to homeowners who invested in solar panels. In the meantime on the basis of Utility Regulatory Policies Act the Government required utilities to purchase power from renewable sources. The 2005 Energy Policy Act contained a 30% investment tax credit for property owners who installed commercial or residential solar systems. In 2009 the American Recovery and Reinvestment Act offered \$90 Billion to the benefit solar industry.

The central tax incentive offering the 30% investment tax credit for residential and commercial renewable energy systems still applies (until 2016). It aims to reduce tax liability for individuals or businesses that purchase qualifying solar energy technologies and provide for a federal income tax credit equal to 30% of the value of the "energy property" placed in service during the taxable year.¹² The incentive is available for private-owned and investor-owned electric facilities. It is a stable long-term incentive. Its objective is to enhance private sector investment in solar manufacturing and solar project construction.

A second tax incentive is a 30% manufacturing tax credit (MTC). It lasted until 2011. MTCs were offered to new, expanded, or re- equipped domestic manufacturing facilities that supported clean energy development. The Department of Energy (DOE) and the Internal Revenue Service (IRS) allocated MTCs assessing project's commercial viability, job creation prospects, contribution toward greenhouse gas emissions reductions, and other factors. The MTCs were awarded to 183 renewable energy projects, with more than 50 solar facilities having received awards. A production tax credit (PTC), which expired in 2005 reduced the federal income taxes of qualified owners of renewable energy projects based on electrical output per kilowatt-hour (kWh) (and the sale of electricity to an unrelated third party).

Regarding grants, loans and loan guarantees, one of the US Programs allowed solar and other renewable energy developers to receive federal grant money instead of the ITC

¹¹UCLA Journal of Environmental Law and Policy; Issue 32(2); 2014

¹² SEIA, Issues and Policies; Solar Investment Tax Credit (ITC);available at: <http://www.seia.org/policy/finance-tax/solar-investment-tax-credit>

mentioned above.¹³ This programme expired in September 2011. Under this programme, an owner of commercial solar property could receive a grant equal to 30 percent of a project's cost. The programme was also available to residential solar systems under the condition to be owned by a third-party developer through a power purchase agreement (PPA) or lease. Another important programme, the Department of Energy Loan Guarantee Program (LGP) was established by the Energy Policy Act of 2005 aiming at assisting renewable energy projects in obtaining long-term financing by encouraging lower-risk investments by private entities. The departments managed two primary loan programs: permanent and temporary. The permanent programme, initially introduced in 2005, applies to projects that avoid, reduce or sequester air pollutants and employ "new or significantly improved technologies as compared to commercial technologies." The temporary programme now expired, was geared toward "the rapid deployment of renewable energy and electric power transmission projects" and applied to projects utilizing commercial technologies. The latter provided \$13.3 billion in loan guarantees for solar energy projects. \$1.3 billion of this sum went to solar manufactures and \$12 billion to solar generation projects. The former has since 2009 secured over \$11 billion in loan guarantees through four major projects.

There are various US government support measures which can be gathered under the umbrella of the "catch-all" category including other types of government measures such as land grants or R&D support. Some of them are part of the DOE's Sun Shot Initiative. The initiative "aims to dramatically decrease the total costs of solar energy systems by 75 percent by 2020, bringing it down to a goal of \$1 per watt."¹⁴ The programme consists mainly on funding for selective research and loan guarantees for high risk, high payoff concepts—technologies that would allow genuine transformation in the ways the solar energy projects are generated, stored, and utilized. Projects fall mainly into three categories:

- Solar technology projects that fuel fundamental research and development of innovative photovoltaics (PV) and concentrating solar power (CSP) technologies;
- Grid- integration projects; and
- Deployment projects that enable the use of solar by streamlining installations (reducing non- hardware, i.e., "soft" costs).¹⁵

The objective of the Photovoltaic Manufacturing Initiative (PVMI), one of the programmes scheduled under the above-mentioned Sunshot Initiative, is to enhance investment in manufacturing-focused research projects. The interesting aspect of PVMI is that it establishes manufacturing development facilities to ease demonstrating, testing, optimizing, and manufacturing of new technologies with reduced capital requirements. A PVMI award of \$110 million was granted to three groups in 2011 (the Bay Area PV Consortium, SVTC Solar, and the U.S. Photovoltaic Manufacturing Consortium) to

¹³The Section 1603 Treasury Programme

¹⁴ The Kearny Alliance, CHINA'S SOLAR INDUSTRY AND THE U.S. ANTI- DUMPING/ANTI-SUBSIDY TRADE CASES 19 (May 2012), available at: http://www.chinaglobaltrade.com/sites/default/files/china-global-trade-solar-manufacturing_may2012_0.pdf.

¹⁵ SunShot Initiative: About , U.S. DEPT OF ENERGY, available at: <http://www1.eere.energy.gov/solar/sunshot/about.html>

develop advanced manufacturing techniques that will lower the cost of producing PV panels.

SUNPATH¹⁶ is another SunShot programme, which is another photovoltaic manufacturing initiative. The objective is to increase domestic manufacturing through helping companies scale up their manufacturing capabilities once at pilot-scale commercial production levels.

SunShot Initiative provides also for various award programs such as the SunShot Incubator Program, CSP SunShot Research and Development Awards and America's Most Affordable Rooftop Solar Competition.

As far as land grant programs are concerned, in 2012 a special plan was adopted. It offers incentives for solar developers to deploy projects across 285,000 acres of federal land in the western United States and offers additional 19 million acres in the Mojave Desert for solar power plant development.¹⁷ The plan's incentives consist among others of environmental reviews, expedited permitting, and additional financial incentives.

According to Simmons Zachary Scott, the above-mentioned government support measures have brought positive results for solar energy development in the United States. Not only the demand for solar energy grew and a rapid growth of utility-scale solar project took place, but the Government measures have been successful in attracting private investment to solar energy projects. While prior to the DOE's LGP, "*solar technology was so unfamiliar that few banks would back projects,*" the Program "*assuaged investors' concerns and built up a bigger community of people who understand how to make money from solar deals.*"¹⁸ There was a particularly large influx of private investments before 2011, with investors such as Berkshire Hathaway, Inc., MetLife, Inc., and John Hancock Life Insurance Co. pouring more than \$500 million into renewable energy projects in 2011.

The government support measures have helped also to contribute to the success of residential solar panel installation companies. Major solar panel installation businesses like SolarCity, Sunrun and Sungevity are thriving. These companies are taking advantage of government tax incentives, creative financing options (power purchase agreements, leasing, etc.) for consumers, and the low cost of solar panel. Residential installation companies have also been successful in attracting private investors, with Google, Morgan Stanley, Bank of America, and Merrill Lynch, among others, having made investments in these companies.

The US case study shows that providing well targeted financial incentives may be highly beneficial to attract investment in clean technologies and EGS.

¹⁶"Scaling Up Nascent PV At Home"

¹⁷ J. Cart, Federal Plan Designed to Create Large Solar Energy Plants, L.A. TIMES (Oct. 13, 2012), available at: <http://www.latimes.com/news/local/la-me-1013-solar-zones-20121013,0,2819109.story>.

¹⁸Dan Leistikow, Beyond Solyndra: How the Energy Department's Loans are Accelerating America's Transition to a Clean Energy Future , U.S. DEP'T OF ENERGY (June 21, 2012), <http://energy.gov/articles/beyond-solyndra-how-energy-department-s-loans-are-accelerating-america-s-transition-clean>

2) China

On April, 1st 2011 the National Development and Reform Commission and the Ministry of Commerce issued draft revisions to the Catalogue for Guiding Foreign Investment in Industry.¹⁹ The revisions contain a slightly “greener” approach in the 12th Five Year Plan as a whole and on the encouraged foreign investment.²⁰

The Catalogue classifies foreign investment into “encouraged”, “permitted”, “restricted” and “prohibited” investment.²¹

The encouraged foreign investments are those that are assumed to be approved automatically and can benefit from preferential tax treatments. The Catalogue encourages foreign investment in high-end manufacturing, high and new technologies, modern services, new energy, energy saving and environmentally friendly industries. Some additional sectors are environmentally related such as:

- renewable energy production equipment (including bearing of wind turbines generator set of 1.5 megawatts or more, speed increaser bearing, dynamo bearing, etc. and gear transmission used for wind power, nuclear power or high speed rail);
- new energy vehicle key component manufacturing, battery charging station construction (including high energy batteries, anode battery materials, battery separators, battery management systems, motor management systems, and electronic control integration of electric vehicles with 50% foreign shareholding limit);
- advanced energy efficient and emission reduction textile manufacturing (containing a more detailed description of qualified energy-savings and environmentally friendly projects than previously);
- aquatic pollution recovery technology (including offshore oil pollution cleaning and ecology recovery technology and relevant product development, prevention and treatment technology of sea water eutrophication, prevention and treatment technology of marine life explosive growth disaster and coastal zone ecological environment recovery);
- recycling (including construction waste recycling, waste plastics, electrical and electronic products, automobiles, electrical equipment, rubber, metal, battery recycling, recycling plant construction and operation.

Moreover, “environmentally-friendly” was inserted into several project descriptions where it could not be found before such as in the sector of production of specific types of chemicals and materials.

The Catalogue encourages foreign investment and offers tax incentives in sectors that have been inserted in previous catalogues such as: equipment manufacturing, clean energy power station construction, technology advancement, and waste/pollution treatment, chemicals and chemical products, water supply and recycling.

¹⁹J.Park, S.Zhao, “Shifting Priorities: Encouraged Industries for Foreign Investment and the 12th Five Year Plan, Asia Briefing, Volume XII, Number V, 2011

²⁰The Catalogue is available at: <http://english.mofcom.gov.cn/article/policyrelease/aaa/201203/20120308027837.shtml>

²¹Idem.

Projects classified as “permitted” are projects that are not listed. These projects are automatically assumed to be approved but they do not benefit from any of preferential tax treatments given to encouraged investments.

Projects defined as “restricted” should normally wait a longer period for the approval since they are subject to scrutiny. The projects concerned are generally characterised by heavy consumption of energy hence causing high pollution. The projects described as prohibited are generally closed to foreign enterprises considering China’s social issues and national interests.

China offers several tax incentives for environment-related investments. For instance, revenue earned by energy conservation and water conservation projects, environmental protection and clean development mechanisms projects are qualified for a 3-year 50% reduction in corporate income taxes.²² Are also eligible projects related to technological innovation with respect to energy conservation and emission reduction, comprehensive exploitation and utilization of methane, public sewage treatment, public garbage treatment and sea water desalination. The same applies to investment in and operation of infrastructure projects which have the major support of the state such as electric power and water conservancy project.²³

The Corporate Income Tax Law provides other tax incentives for other areas of green sectors such as:²⁴

- Purchase of equipment for environmental protection and conservation: when a company purchases and uses any of such equipment, 10% of the investment in the special-purpose equipment may be offset against its tax payable for the current year. In the case a tax is insufficient for the credit, the excess may be passed through for credit in the next five taxable years;
- Comprehensive use of resources: when a company uses any of the materials listed in the Catalogue of Income Tax Concessions for Enterprises Engaged in Comprehensive Resource Utilization as its main raw material, the income it obtains is included in the total income at a reduced rate of 90%.

Some companies involved in the green sector are considered high and new technologies enterprises and therefore can be granted a reduction in CIT tax liability. Furthermore, those of these enterprises which are located in specific zones (Shenzhen, Zhuhai, Shantou, Xiamen and Hainan) or in Shanghai Pudong District and founded after January 1st, 2008 can benefit from tax holidays which means in practice 2 years tax-free and subsequent 3 years taxed at 12.5 percent).

In order to be considered as a high and new technologies enterprise, a company must comply with several conditions:²⁵

²²E. Ku, D. Shira and Associates, Selected Tax Incentives in the Environmental Sector, Asia Briefing, Volume XII, Number V, 2011.

²³Idem.

²⁴Idem.

²⁵ E. Ku, D. Shira and Associates, Selected Tax Incentives in the Environmental Sector, Asia Briefing, Volume XII, Number V, 2011.

- Current-year income from high- and new-technology products (services) must at least be 60 percent of the total revenue of the enterprise.
- R&D expenditures for the last three accounting years should reach a certain percentage of the enterprise's total revenue

Total revenue in preceding year:

Total revenue in preceding years	R&D expenses at least as a % of revenue
Below 50 million RMB	6%
RMB 50 – 200 million	4%
Above 200 million	3%

- At least 60 percent of the minimum R&D expenditure must be incurred in China
- It must be in possession of independent intellectual rights for core technologies applied to its major products (or services), acquired through independent research and development, or transfer, donation or merger during the immediately preceding 3 years or through exclusive licensing for a period of 5 years minimum.
- It must conduct continuous research and development activities in order to make pioneer discoveries in science or technology (except for humanities and social sciences), making creative use of new scientific and technological knowledge, or substantially improving technologies or products (or services).

China also offers VAT exemptions or reductions. VAT exclusion regime has been offered since 2008 to companies whose products or services are the result of “comprehensive utilization of resources”. This means that their manufacturing processes are energy-efficient and use waste as production inputs.²⁶ This concern green building materials, combined heat and power pollutions, reclaimed wastewater, and others.²⁷

Regarding the green building sector, VAT exemptions are offered:²⁸

- for selling self-manufactured products that contain at least 30 percent recycled industrial waste such as coal refuse or fly ash;
- for selling self-manufactured recycled asphalt concrete produced from waste asphalt concrete;
- for selling self-manufactured environmentally-friendly new walling materials

²⁶Idem.

²⁷Idem.

²⁸Idem.

Moreover, importers of wind turbine components and manufacturers of wind power equipment also qualify for VAT benefits such as an immediate 50% VAT reduction applied to the sale of self-manufactured electric power generated from wind power.²⁹

Furthermore, as from January 2011, income that qualified energy-saving service companies involved in energy management projects earn is temporary exempted from business tax.³⁰

Among the government tax incentives destined for the solar energy sector, the government applies the so-called Golden Sun programme which includes 50% of grid-connected solar investments and 70% of off-grid power investments under the conditions of 300 KW minimum capacity, 1-year maximum construction period and 20+ years planned operations.³¹

It is estimated that China will spend USD 1.54 trillion on clean energy projects in the next 12 years.³² Government investment comes through multiple channels such as state-owned investment vehicles, financial institutions, financial and tax policies. In addition, China Investment Corporation, a USD 300 billion-asset-holding state wealth fund, is investing considerably not only in Chinese clean-energy companies but also in foreign operators with projects in China. Similarly, Conservation Investment Corporation invests heavily in energy conservation, pollution control and renewable energy private sector projects.³³

It is estimated that the investment in green sector will only increase in China in the future.³⁴ Foreign companies' mergers and acquisitions in the green energy sectors are expanding. Foreign investors get involved in solar energy sector by setting up production facilities in China, by mergers and acquisitions with Chinese companies and research and development. In this respect for instance US-based National Clean Fuels acquired China National Solar in 2010, Australian National University and Chinese Trina Solar joined together in a three-year R&D programme, Centrosolar Group AG of Germany announced its first anti-reflective coating production in China.

The Chinese example shows that an adequately elaborated set of "green" subsidies may have beneficial effects on the deployment of foreign investment in "green" sectors and the promotion of environmental goods and services. China is often criticized for an uncompromising model of economic growth and its destructive influence on the environment but its motivation for clean energy development cannot be denied. It has to be noted that China had the largest private investment in clean energy in the entire world in 2010. Tax incentives at both national and local levels are often mentioned as key government method for the green energy development. Various tax incentives and other

²⁹Idem.

³⁰Idem.

³¹J. Shi, S. Zhao, C. Micheal, N. Dapprich, D. Shira and Associates, An Overview of China's Renewable Energy Market, Asia Briefing, Volume XII, Number V, 2011

³²Idem.

³³Idem.

³⁴Idem.

subsidies in the sector are continuously emerging strongly encouraging the involvement of foreign investors, who do not seem to be wasting the offered opportunities.

3) Conclusion on subsidies

It results from the experiences of the United States and of China, as well as from a review of the literature, that the most effective subsidies are those that are clearly targeted and focus more on activities than sectors.

Further lessons learned, which are applicable to subsidies (and environmental policy in general), include the following elements:

- interventions in the value chain that limit production and export, should be removed;
- the measure should be as transparent as possible;
- the goals pursued should be spelt out with clear criteria for success and failure;
- incentives should be provided only for ‘new’ activities;
- the impairment of competition should be avoided;
- the project should entail private risks commensurate to public risks;
- the government agency administering the policy should be competent, with clear political oversight and accountability; and
- the project should be subject to regular external valuations.

It is also claimed that, since market failures (and hence the policies addressing them) may be difficult to identify and quantify, private and public sector should cooperate in a ‘discovery process—one where firms and the government learn about underlying costs and opportunities and engage in strategic coordination’. This continuous process should assist in ensuring the subsidy is linked to changing needs and removed when it becomes unnecessary. Additionally, to avoid opportunistic behaviour, unnecessary distortions and excessive spending, subsidies should be granted only if they are necessary to produce the incentive effect and only until the obstacle justifying them exists. It is in this respect, as a general rule, subsidies should only be temporary and subject to a sunset clause. Generally speaking, distortions can be accepted to the extent public support is needed to complement the market and it is established that subsidies are cost-effective in achieving the desired goal.

To sum up, when the decision to grant subsidies is taken, it is important to properly design subsidy programmes according to their objectives so that the desired incentive effect is maximized and the costs and distortions of the subsidies are kept to a minimum.

III.2. Public Procurement

Public procurement is a policy tool that may be used in order to create demand in environmental goods and services. The government can be a very large consumer of goods and services and it can leverage its purchasing power to create or expand the

markets for EGS. Procurement promoting EGS can be “a major driver for innovation, providing industry with real incentives for developing Green products and services – particularly in sectors where public purchasers represent a large share of the markets,”³⁵ such as public transport or construction. Governments may play an important role by offering green innovators a guaranteed market for their products, thereby generating economies of scale and lower costs. Public procurement may thus help reduce the level of financial support needed by foreign investors.

However, public procurement policies can also discriminate against foreign suppliers and favour domestic suppliers in an explicit or implicit way.³⁶ Such type of trade distortion is generally negatively perceived in the international trade arena and addressed by existing international agreements (see below).

This section provides an overview of third countries procurement practices and instruments as well as concrete illustrations of EGS procurements.

1) The European Union

Public procurement in the EU is regulated by two main directives: The Public Sector Directive³⁷ and the “Utilities Directive”³⁸. The former sets forth the procedure for awarding most major contracts by public bodies. The latter defines procedures regulating awarding of major contracts by bodies engaged in certain activities in sectors such as water, transport, energy and postal services.

The directives are based on principles of transparency, equal treatment of bidders, best value for money and free movement of goods and services. These instruments allow the application of sustainable procurement principles but do not force the European procuring entities to do so.

The provisions concerning sustainable procurements contained in both instruments are quite similar. Both directives, for example, require major contracts to be advertised through the EU’s official journal, to publicise the contracts to all interested parties and to regulate the criteria that can be used to tender and award contracts. Several recitals of Directive 2004/18 illustrate the EU’s approach towards sustainable procurements and the way in which environmental considerations can be taken into account by European purchasers.³⁹

³⁵ See Commission, *Buying Green! A Handbook on Green Public Procurement*, 2nd ed., 9.2011, available at: <http://ec.europa.eu/environment/gpp/pdf/handbook.pdf>.

³⁶ A. Herve and D. Luff, “*The Trade Implications of Procurement Practices in Sustainable Energy Goods and Services*,” *ICTSDn*, November 2012.

³⁷ Directive 2004/18/EC

³⁸ Directive 2004/17/EC

³⁹ See in particular the 1st, 5th, 29th, 44th, 46th recitals of the EU Directive 2004/18. The same can be observed concerning the so-called Utility Directive 2004/117. For a deeper analysis, see S. Arrowsmith and others, *EU Public Procurement law: an Introduction*, (2010) EU Asia Inter University Network for Teaching and Research in Public Procurement Regulation, available at: <http://www.nottingham.ac.uk/pprg/documentsarchive/asialinkmaterials/eupublicprocurementlawintroduction.pdf>; Moreover, several rulings from the European Court of Justice deal with the issue of sustainable procurement. See for instance Case C-448/01, *EVN AG and Wienstrom GnbH v. Austria* (“EVN”) [2003] ECR I-14527.

Following these directives, the European Commission adopted a proactive approach toward sustainable procurements through regular communications and staff working documents. Its recently updated handbook on green procurements, “Buying Green,” provides useful guidelines for public purchasers who want to introduce sustainable considerations into their tendering procedures.⁴⁰ EGS can be promoted at different stages of the European procurement procedures.

First of all, the promotion of environmental goods and services may take place at the preparatory stage requiring decision on the applicable procedure. An *open procedure*, which allows any operator to submit a tender, provides for maximum choice of environmental friendly solutions but does not require tenders to be selected on the grounds solely based on environmental considerations.⁴¹ A *restricted procedure*, which invites a narrow number of operators to present their tenders or a *negotiated and competitive dialogue* (in case of complex procurements) allow for the assessment of the environmental technical capacity of the tenderers at an early stage.⁴²

Secondly, once the adequate procedure is chosen, the defining of contract requirements and technical specification is an important phase for the introduction of environmental considerations. In the European Union the Technical specifications are designed by reference to European, International, or national standards as well as in terms of performance or functionality or in terms of environmental performance levels of a material, product, supply or service.

The use of European eco-labels in the tender documents is encouraged.⁴³ It can be used to ease the assessment of compliance with technical specifications. The eco-labels are voluntary and tenders cannot be obliged to register under them.

Thirdly, the selection and awarding phase allows to consider tenderers experience and competence concerning environmental matters. The EU legal framework provides for a large scope of environmental award criteria.

As far as the implementation of its policy is concerned, the EU Commission strongly encourages the creation of networks and the exchange of good practices at the national and the local level, such as the ICLEI (Local Governments for Sustainability), which is dedicated to introducing new instruments, mechanisms, and tools for municipal management in order to ensure the implementation, effective monitoring, and continual improvement of sustainable development policies.⁴⁴ Other initiatives include the Local Authority Environmental Management Systems and Procurement (LAEP), which established a toolkit and developed a suite of tools and guidance for public authorities to deal with green procurement as part of an Environmental Management System.⁴⁵

Some studies, however, are not optimistic about sustainable procurement on the part of European institutions and member states. The “Green Public Procurement in Europe 2006 Report,” produced by four NGOs and supported by the European Commission, assessed

⁴⁰ See Commission, *Buying Green! A Handbook on Green Public Procurement*, op. cit.

⁴¹ Idem.

⁴² Idem.

⁴³ Article 23.6 OF Directive 2004/18

⁴⁴ <http://www.iclei-europe.org/index.php?id=procurement>.

⁴⁵ <http://www.leap-gpp-toolkit.org/>.

the state of green public procurement in the then 25 EU member states.⁴⁶ The report identifies the main barriers to the development of green procurement as the high cost of green products, the lack of environmental knowledge on the part of purchasers, the absence of managerial and political support, and the lack of information and appropriate training of the bidders. Other studies conducted within EU member states, such as Sweden, confirmed this conclusion regarding the factors that limit tenderers from promoting EGS.⁴⁷

2) China⁴⁸

The liberalisation of Chinese public procurement started in the early 1980s, after which China passed two primary laws on public procurement – the Bidding Law in 1999⁴⁹ and the Government Procurement Law in 2002.⁵⁰ These laws were supplemented by a series of implementing measures taken by different government agencies.⁵¹

Sustainable procurement is not a legal concept as such within Chinese law. Still, in recent years, a great number of laws were enacted to implement sustainable policies in public procurement.⁵² Article 9 of the Chinese Government Procurement Law states that “government procurement shall be conducted in such a manner as to facilitate achievement of the economic and social development policy goal of the state, *including but not limited to environmental protection* [...]” And the Chinese Bidding Law, despite its lack of secondary policy objectives, implicitly allows the consideration of sustainable development policies at

⁴⁶ The data for this study came from two sources. One was from 865 responses to 8787 questionnaires, and the other was from a survey of 1000 tender documents. See http://ec.europa.eu/environment/gpp/pdf/take_5.pdf.

⁴⁷ L. Carlsson and F. Waara conducted a survey in Sweden before the implementation of Directive 2004/18 through interviews with 29 procurement officers in eight Swedish municipalities, one county and one region in Sweden. Three types of limitations to the integration of environmental concerns were identified: *the lack of administrative resources* (including environmental know-how), *legal concerns* (suppliers refrained from using environmental related award criteria because it could result in bid protests from unsuccessful bidders) and *lean budget* (some purchasers considering that environmentally friendly goods and services are too expensive). See L. Carlsson and F. Waara, “Environmental Concerns in Swedish Local Government Procurement,” 2006, In: K.V. Thai and G. Piga (Ed.), *Advancing Public Procurement*, PrAcademics Press, Boca Raton, USA. Available at http://www.ipppa.ws/IPPC2/BOOK/Chapter_11.pdf

⁴⁸ This section is mostly taken from A. Herve and D. Luff, “*The Trade Implications of Procurement Practices in Sustainable Energy Goods and Services; ICTSDn*, November 2012.

⁴⁹ <http://www.lawinfochina.com/display.aspx?lib=law&id=1014>

⁵⁰ http://www.gov.cn/english/laws/2005-10/08/content_75023.htm

⁵¹ See C. Fuguo, “China’s government procurement policy and Institutional Framework: History, structure and Operation” in Khi V. Thai (ed.), *International Handbook of Public procurement*, CRC Press, Florida, 2009, 325-349.

⁵² See, C. Fuguo, Y. Yuying and Z. Fen, “China Green Public Procurement Program: Issues and Challenges in its Implementation” (2011), available at <http://www.ipppa.org/IPPC4/Proceedings/07GreenProcurement/Paper7-6.pdf>. See also M. Ju, L. Zhang, L. Zhan, H. Ren and Z. Yang, “Public Green Procurement in China: Development Course, Program Management and Technical Methods, Sustainable Public Procurement in Urban Administration in China: An Action under Europe Aid’s SWITCH-Asian Program Paper,” No. 02-EN/CH, 2009. www.public-procurement.cn/English%20Document/Reports%201/Public%20Green%20Procurement%20in%20China.pdf.

different stages of the procurement (such as the qualification process, technical specifications, and award stage).⁵³

The Clean Production Promotion Law of the People's Republic of China of 2002 indicates that "governments at all levels, in their procurement, *should give priority to the products that are environment friendly and resource-conserving.*" This law also states that "*all levels of government should use advocacy and education to encourage the public to purchase and to use environment friendly and resource-conserving products.*"⁵⁴

A third important legal provision is the Circular Economy Law of the People's Republic of China, Article 47 of which provides that entities and individuals purchasing goods with public funds should give preference to energy-saving, water-saving, material-saving, and environmentally-friendly and recycled products.⁵⁵

This set of legal instruments refers to two lists that have a critical impact on the use of sustainable products and of labels that specify exactly which products should be preferred for environmental reasons:

- The *Labeling List* (established in 2006 by the Ministry of Environmental Protection) lists products quality-verified by third-party verification agencies, who attest *inter alia* that they are energy-efficient or contain recyclable material. This system of green labelling is voluntary, and suppliers are allowed to give other kinds of evidence aside from the label to attest that their products are compliant with the green technical requirements and specifications of a public contract. The list contains 21 categories of products, such as light vehicles, photocopiers, computers, water-based paints, and furniture.
- The *Energy-saving list* covers both *energy-saving* and *water-saving* products. It is promulgated by the Government Procurement Supervision and Administration Department under the Central Government, or at the provincial level jointly with the provincial department.⁵⁶ It contains more than 25 categories of energy-saving products, such as air conditioners, refrigerators, water heaters, computers, and seven categories of water saving products, such as toilets, showers, and faucets.

Chinese regulation also requires that the State Council and provincial governments give priority to products and equipment that have an attestation certificate for energy conservation in preparing the lists.⁵⁷ The list and accreditation system is crucial for suppliers, as the eligibility for a green procurement contract is entirely dependent on them. In this respect, the 2008 Chinese Law on Energy Conservation requires *all* public entities to procure products and

⁵³ C. Fuguo, "China's Government Procurement Policy and Institutional Framework: History, Structure and Operation," op. cit., p. 329.

⁵⁴

http://english.mep.gov.cn/Policies_Regulations/laws/envir_elatedlaws/200710/t20071009_109966.htm

⁵⁵ Standing Committee of the 11th National People's Congress (NPC) of the People's Republic of China, "Circular Economy Law of the People's Republic of China," 29 August 2008. <http://www.chinaenvironmentallaw.com/wp-content/uploads/2008/09/circular-economy-law-cn-en-final.pdf>

⁵⁶ See Article 51 of the Chinese Law on Energy Conservation.

⁵⁷ See *id.*, Article 64.

equipment that are on the energy-saving list.⁵⁸ Moreover, procurement of energy-consuming products and equipment that have been explicitly eliminated by the state is prohibited. A public institution that considers procuring energy-saving products and equipment but fails to procure a product or equipment included in the lists is subject to sanctions.⁵⁹

However, there are several obstacles which affect the promotion of EGS in China.

First of all, Chinese laws lack precision and are too general. For example the Government Procurement Method indicate that governments should give priority to high-tech and eco-friendly products but it does not define them.⁶⁰ In addition, the Chinese regulations on public procurement do not explicitly cover construction and services which are of crucial importance for environment.

Secondly, the institutions related to public procurement lack of unity. There is no single specific agency in charge of green procurement. Different, often rival, actors pass regulations “either jointly, or on their own, causing policy overlaps, management duplication, and even conflicts amongst agencies.”⁶¹

Thirdly, China still lacks a real market for sustainable procurement. Technological investments in this field are low and many barriers to trade still impede access to the Chinese market. The priority given in Chinese law to national products and suppliers certainly limit the purchasing entities’ choice of sustainable goods and services.⁶² The compulsory and exclusive nature of the *energy-saving list* is in part responsible for this phenomenon.

The fourth obstacle consists of weak human and financial resources of the public authorities. “The government does not have trained Green procurement professionals. Those involved in Green procurement are from the finance department or are management personnel. Many of them do not have procurement experiences and know very little about market analysis, procurement cost control, supplier assessment and management, procurement contract management, negotiation, or communication. They have even less understanding and knowledge about Green procurement ... Therefore they tend to use their subjective judgment in deciding the bid.”⁶³ Coupled with insufficient funds appropriated by public procurement, Chinese purchasers logically tend to award procurement solely on the “lowest price approach.”

⁵⁸ See Article 51 of the Chinese Law on Energy Conservation “When a public institution purchases energy-consuming products and equipment, it shall purchase those products and equipment that have been incorporated into the government procurement inventory of energy-saving products and equipment.” An English translation of this law is available at <http://faolex.fao.org/docs/texts/chn76322E.doc>.

⁵⁹ See *id.*, Article 81.

⁶⁰ *Idem.*

⁶¹ Some authors therefore propose the creation of a unified “Green procurement agency” See Y. Qiao and C. Wang, “Issues and Challenges in Implementing China’s Green Public Procurement Program,” p. 1040.

⁶² The GPL implements a buy-national policy in Article 10, which provides that “the *government shall procure domestic goods, works, and services* except where: 1) Goods, works, or services to be procured are not available within the territory of People’s Republic of China or though available, cannot be acquired on reasonable commercial terms and conditions. 2) Items to be procured are for use abroad 3) Otherwise provided by laws and administrative regulations.”

⁶³ See Y. Qiao and C. Wang, “Issues and Challenges in Implementing China’s Green Public Procurement Program,” p. 1041.

3) United States⁶⁴

The US has recently developed several initiatives to promote EGS-related procurement, following the historical willingness of the American authorities to use public procurement as a tool for developing strategic policies.⁶⁵

At the federal level, President Obama signed an Executive Order in 2009 aimed at establishing “an integrated strategy towards sustainability in the Federal Government and to make reduction of Greenhouse gas emission a priority for federal agencies.”⁶⁶ The executive order states that federal agencies must immediately increase energy efficiency, reduce their greenhouse gas emissions from direct and indirect activities, conserve and protect water, eliminate waste, recycle, and prevent pollution, among other initiatives. To that end, very detailed and precise objectives are given to the agencies. For example, Section 2h of the executive order directs heads of agencies to advance sustainable acquisition by ensuring that 95 percent of new contract actions are purchased through green-certified and labelled programmes.

Moreover, several initiatives have been taken at the sub-federal level. In the field of electricity supply, for instance, 29 states and the District of Columbia have implemented the so-called mandatory renewable portfolio standards (RPS), *i.e.* standards that encourage production of energy from renewable energy sources, including wind, solar, biomass, and geothermal.⁶⁷ Although their designs differ considerably from one state to another, RPS policies usually imply an obligation for utilities or load serving entities⁶⁸ to procure a certain proportion of renewable energy by a specific date. Most renewable portfolio standards requirements carry through to 2020 or even longer.

⁶⁴ This section is largely taken from A. Herve and D. Luff, “*The Trade Implications of Procurement Practices in Sustainable Energy Goods and Services*; ICTSD, November 2012.

⁶⁵ Beside the promotion of SME’s already mentioned, one can observe that the US administration, particularly the US department of defense played a critical role in promoting R&D and innovation through public procurements. For instance, “in the 60s, when the technological options were far ahead of civilian applications in the semi-conductor business, the US defense sector represented the only customer for the American sector industry. With its high-level technological requirements, the public sector created a strong demand for innovation in order to satisfy the specifications imposed by military applications. Department of Defense willingness to pay almost any price for compact, lightweight electronics for its missile programmes stimulated the infant semiconductor industry.” See L. Nyiri, D. Osimo, R. Özcivelek, C. Centeno and M. Cabrera, *Public Procurement for the Promotion of R&D and Innovation in ICT*, available at <http://ftp.jrc.es/EURdoc/eur22671en.pdf>.

⁶⁶ Available at <http://www1.eere.energy.gov/femp/pdfs/eo13514.pdf>.

⁶⁷ See C. E. Kreycik, T. D. Couture and K. S. Cory, *Procurement option for new Renewable Electricity Supply*, NREL, December 2011, available at: <http://www.nrel.gov/docs/fy12osti/52983.pdf>.

⁶⁸ Load serving entities (LSEs) “provide electric service to end-users and wholesale customers. LSEs include the competitive retailers (CRs) that sell electricity at retail in the competitive market. A Competitive retailer may be (1) a retail electric provider, which contracts with qualified scheduling entities to provide scheduling services for their load customers, or (2) a municipally owned utility or co-operative that opts to offer customer choice (an opt-in entity). LSEs also include non-opt-in entities, which are electric cooperatives and municipally owned utilities that do not operate as CRs and do not plan to offer customer choice.” www.ercot.com/services/rq/lse/

4) United Kingdom

The United Kingdom officially recognises that sustainability should be a key component of public procurement policies.

The UK uses public procurement to promote environmental goods and services as well as innovation. For example, it has used public procurement for the development of a carbon capture and storage (CCS) pilot power plant.⁶⁹ The aim was to help private developers overcome technical and commercial risks and uncertainties in the development and deployment of CCS technologies. The issued tender contains funding for research on CCS technology and the arrangement of pilot CCS sites. Clearly defined criteria include a provision that the pilot plants should use post-combustion capture technology and store the sequestered CO₂ in offshore geological sites. This technology should be able to sequester 90 percent of CO₂ and to cover the whole project cycle (capture, transport, and storage) by 2014, while reaching an electrical output of at least 300 MW. Finally, the project should be built in the UK.

Among other initiatives, the UK has also launched a “hydrogen fuel-cell and carbon abatement technology fund”, a funding to support a new programme aimed at accelerating the market penetration of lower carbon vehicles and reducing the barriers faced by companies in moving from prototype demonstrations of lower carbon technologies to full commercialisation. The scheme provides financial support for a public procurement of fleet demonstrations of lower carbon vehicles.

5) South Africa

The example of South Africa is based on the clean energy infrastructure sector. In this field, South African practice values a lot the experience of the bidder with clean technologies.⁷⁰ Clean energy infrastructure projects require complex technologies and contract relationships. Hence, bidders with more experience are deemed to entail lower risks of delays or failure to comply and to propose more reliable prices.⁷¹ The South African government has elaborated its bidding criteria to concentrate on technologies, which have already been used and proven, or by requiring past experience in administering similar projects internally or abroad.

The table below shows the example of technical requirements for bidding in clean energy in South Africa⁷²:

⁶⁹ UK Department for Business Enterprise & Regulatory Reform, Competition for a Carbon Dioxide Capture and Storage Demonstration, Project Information Memorandum, p. 8 (2007).

⁷⁰ OECD Policy Guidance for Investment in Clean Energy Infrastructure, Expanding Access to clean energy for green growth development, an OECD Report to the G20, with contributions by the World Bank and UNDP, October 2013.

⁷¹ Idem.

⁷² Goldie-Scot, L. “South Africa decides to give wind and PV a tender embrace”, *Clean Energy Research Note*, Bloomberg New Energy Finance (BNEF); 2011 and OECD Policy Guidance for Investment in Clean Energy Infrastructure, Expanding Access to clean energy for green growth development, an OECD Report to the G20, with contributions by the World Bank and UNDP, October 2013.

Sector	Minimum Capacity (MW)	Maximum capacity (MW)	Experience
Onshore wind	1	140	Developer must have worked on 2 projects of comparable scope and duration (although this is not restricted to renewable energy sector)
Solar PV	1	75	The inverter type must have been used in two commercial projects for 24 months with 95% technical availability/ The module type must have been used in two commercial projects for 12 consecutive months with 95% technical availability.
STEG	1	100	The solar concentration system, heat receiver, heat transfer fluid and handling system, electrical generation system, cooling system and thermal storage system (i applicable) must have been used in 2 commercial projects for at least 24 months or 36 months for a demonstration project.
Biomass	1	10	The fuel handling systems, fuel conversion and prime mover technology must have been operating at a technical availability of 75% for 12 consecutive months.
Biogas	1	10	The proposed anaerobic digestion concept must have been in use for at least 24 months and operated at similar scale for the project. Prime mover technology must have been in use for at least 12 months with 80% technical availability.
Landfill gas	1	10	Prime mover technology must have been in use for at least 12 months with 80% technical availability. Gas booster and flare equipment must have been in use for at least 12 months in 2 different commercial landfill gas projects and have been shown to comply with the

Sector	Minimum Capacity (MW)	Maximum capacity (MW)	Experience
			South African requirements for safety and environmental performance.
Small hydro	1	10	The proposed turbine and generator manufacturer must have applied similar equipment in 2 different hydropower projects at a scale greater than 1 MW and operating for a period of at least 24 months.

6) Conclusions on Government Procurement

The experiences of other countries with green procurement, or procurement favouring the use of EGS provides several lessons:

- Public Procurement is a very relevant tool to promote EGS and countries typically try to make use of it.
- Favouring the use of EGS can be organized at all the stage of the public procurement process, from the choice of the adequate procedure, to the identification of technical requirements and selection criteria.
- Implementing a criterion of “best value for money”, as opposed to “lowest price” enables to integrate the benefits to the environment into the value of the contract.
- Human and financial resources of the public authorities must be sufficient.
- Information sharing among procuring entities and their sensitization to environmental objectives remain essential.
- Bidding requirements must be defined with precision.
- Public-private partnership in the development of sustainable procurements and, particularly, EGS procurement is essential. Proactive cooperation of the private sector, experts, and the public conditions the success of public procurement policies in EGS.
- The development of EGS necessitates a strong political drive at the highest level and large cooperation networks established at national and local levels.
- Countries should not discourage and limit the innovation potential (and associated cost reductions) that tenderers can bring. In this regard, while technology or experience-specific bidding criteria can allow governments to better assess the bidder’s previous performances and the adequacy of the bids themselves, such conditions may restrict market entry and hamper competition and innovation. Finding the right balance is essential.

III.3. Local Content Requirements

Local content requirements (LCRs) are defined as policy measures which require foreign or domestic investors to source certain percentage of intermediate goods from local producers or manufacturers.⁷³ Such tool can be used to entice investors to source renewable energy, or EGS locally produced. This may also encourage investments in the local production of EGS.

LCRs can be both explicit and implicit. Explicit LCRs (e.g. numerical or qualitative) are contained in national legislations or industrial regulations and specify the minimum share of local content (locally sourced goods or services). A less explicit system introduces LCRs as one of the criteria in a framework of a “weighing” mechanism. The LCR can be implicitly required by a statement of a government official related to assessment method for a specific tender for instance.⁷⁴

Defenders of LCRs argue that 1) they enhance economic benefits (e.g. net employment gains, creation of domestic industry, and protection of infant industries, increased tax base for governments) and 2) generate environmental benefits in the medium term (spill over effects of the above mentioned benefits resulting eventually in lower green technology costs, increased deployment, enhanced transfer of technology and knowledge).⁷⁵

Opponents of using LCRs put forward the fact that LCRs entail an inefficient allocation of resources, a negative impact on free trade, and price inflation. Furthermore they would not really help generating additional green jobs.

LCRs can have significant impact on investment and trade. In cases where local content requirements are high (e.g. above 20-30%) and combined with effective enforcement mechanisms at the sector and product level, the Government use of LCRs can affect considerably the investment and sourcing patterns in the host country. This can be illustrated by the use of LCRs in Thailand in the automotive sector which led to 77% decrease in the value of imported parts in each domestically assembled vehicle. Another example consists of South African LCR's which resulted in almost one-quarter decrease import penetration ratios.⁷⁶

In order to attract foreign investors, the LCRs are often combined with other initiatives such as cheap loans, feed-in-tariffs (FITs) and other financial and funding mechanisms. The examples below provide an overview of the third countries practices with respect to LCRs.

⁷³ICTSD, *“Local Content Requirements and the Renewable Energy Industry – A Good Match?”* , Jan-Christophe Kuntze and Tom Moerenhout, May 2013

⁷⁴UNCTAD, Ad hoc Expert Group Meeting on Domestic Requirements and Support Measures in Green Sectors: Economic and Environmental Effectiveness and Implications for Trade, Local Content Requirements and Green Economy, 13-14 June 2013

⁷⁵ ICTSD, *“Local Content Requirements and the Renewable Energy Industry – A Good Match?”* , Jan-Christophe Kuntze and Tom Moerenhout, May 2013

⁷⁶ UNCTAD, Ad hoc Expert Group Meeting on Domestic Requirements and Support Measures in Green Sectors: Economic and Environmental Effectiveness and Implications for Trade, Local Content Requirements and Green Economy, 13-14 June 2013

1) China

China has become a global player in the wind industry. Reasons for this success can be found in a successful creation of a domestic wind industry and an effective mix of financial incentives (LCRs and clean development funding).⁷⁷ LCRs have been applied in China in the framework of various wind energy incentive policies.

Between 2003 and 2009, which was the determining period for the success of China, two types of projects have been promoted: nationally approved projects over 100 MW which provided for high bidding points for proposals containing LCRs, and wind farm projects approved by the National Development and Reform Commission, for which a LCR was a formal requirement.⁷⁸

Market size and stability condition the effectiveness of the LCRs.⁷⁹ China's success confirm this theory. According to Lewis and Wiser, LCRs work if they are gradually introduced in stable markets with sufficient potential.⁸⁰ A sufficient market size offers a stable demand without which the investors may be discouraged from entering the market, due to the higher costs related to LCRs.⁸¹

As far as China is concerned, the country has a huge domestic wind energy resource and a large and growing domestic market for electricity. This has allowed China to benefit from economies of scale for the manufacturing of wind turbines and from the stable demand for wind turbines in its domestic market.⁸²

Researchers agree that for the LCRs to be successful, the LCR percentage cannot be initially too high and that it should be gradually phased in.⁸³ According to F. Veloso appropriate rates depend on the production volume and opportunity cost of capital. Up to a certain level, the cost of LCR can be offset by the value it brings to the local economy (e.g. additional domestic manufacturing). In that case, the LCR creates a net benefit. Such a net benefit is at its maximal level at a certain percentage.⁸⁴

The Chinese LCR requirements were quite restrictive (50% in 2003, 70% in 2004). Such an increase in a short period of time is not optimal. It does not allow for "learning by doing" which supposes that producers can lower the costs of installed capacity by means of the learned efficiency due to their experience.⁸⁵ However, the 2003 programme was

⁷⁷ Idem.

⁷⁸ Idem.

⁷⁹ J. Lewis and R. Wiser; *"Fostering a Renewable Energy Technology Industry"*, 2005

⁸⁰ Idem.

⁸¹ ICTSD, *"Local Content Requirements and the Renewable Energy Industry – A Good Match?"*, Jan-Christophe Kuntze and Tom Moerenhout, May 2013

⁸² ICTSD, *"Local Content Requirements and the Renewable Energy Industry – A Good Match?"*, Jan-Christophe Kuntze and Tom Moerenhout, May 2013

⁸³ J. Lewis and R. Wiser; *"Fostering a Renewable Energy Technology Industry"*, 2005 and F. Veloso; *"Local content requirements and industrial development: Economic analysis and cost modelling of the automotive chain supply"*, 2001

⁸⁴ ICTSD, *"Local Content Requirements and the Renewable Energy Industry – A Good Match?"*, Jan-Christophe Kuntze and Tom Moerenhout, May 2013

⁸⁵ Idem.

preceded by other programmes such as “Ride the Wind Programme” in 1997 where a 20% LCR was already included.

In Chinese programmes, the LCRs were combined with financial support to attract foreign and domestic investors. In the 1997 “Ride the Wind Programme”, the government provided support from its technology funds. For the programme that started in 2003 the government provided beneficial electricity tariffs under the condition that the LCR is met.

R&D grants (up to 45million Yuan per 1.5 MW turbine) were also available. However, the beneficiary companies were required to be state-owned or majority Chinese controlled and to have developed intellectual property protected by a Chinese patent.⁸⁶ China, however, had to abandon this legislation after WTO consultations with the United States.⁸⁷

The LCR programmes were abolished in China in 2009 and feed-in tariffs systems have been introduced in their place. A feed-in-tariff mechanism is a system that offers long-term contracts to renewable energy producers, typically based on the cost of generation of each technology. Pursuant to these contracts, the energy they produced is purchased at a rate that is above normal market price.

The use of LCRs combined with rise of deployment of wind turbines led to a rise of domestic production levels in China. Indeed, before 2000 only 10% of the domestic market share were held by the Chinese companies. Since then, the Chinese wind turbine equipment manufacturing industry boomed and is still developing.⁸⁸ Out of ten most important manufacturers six are Chinese. Five of the largest enterprises have growth rates of more than 113%.⁸⁹ The majority of foreign owned and private companies withdrew from the Chinese market in 2009 or even before due to high LCRs.⁹⁰ The Chinese boom in the wind industry which started in 2003 has created around 200.000 jobs.⁹¹

The LCRs also contributed to a transfer of know how concerning wind energy technology which allowed domestic companies to start manufacturing promptly.⁹²

However, to argue that the LCRs enhanced green innovation in China would be somehow premature. Wind energy innovation needs to follow global standards for technology development and quality. If the Chinese producers do not comply with those quality standards, the argument that LCRs contribute to the creation of global and innovative competitors are not valid.⁹³

⁸⁶ Idem.

⁸⁷ Idem.

⁸⁸ ICTSD, *“Local Content Requirements and the Renewable Energy Industry – A Good Match?”* , Jan-Christophe Kuntze and Tom Moerenhout, May 2013

⁸⁹ Idem.

⁹⁰ L. Junfeng, S. Pengfei and G. Hu; Chinese Renewable Energy Industries Associations; Global Wind Energy Council; Greenpeace; *“China Wind Power Outlook”*, 2010

⁹¹ ICTSD, *“Local Content Requirements and the Renewable Energy Industry – A Good Match?”* , Jan-Christophe Kuntze and Tom Moerenhout, May 2013

⁹² Idem.

⁹³ Idem.

2) Canada

Ontario, Canada's province, has been using LCRs in relation to renewable energy, since 2009. Ontario's LCR is combined with feed-in-tariffs (FIT). This means that if the local content requirements are not respected, the companies are not eligible to benefit from higher FIT. The content requirement for wind energy projects (below 10 kW) amounted to 25% between 2009 and 2011 and to 50% in 2012. In the field of solar energy projects (below 10 kW) the requirement consisted of 50% in 2009 and 2010 and increased to 60% in 2011 and 2012. For other renewable energy project (above 10 kW) the requirement was set at 40% in 2009 and 2010 and 60% in 2011 and 2012.⁹⁴

The experts agree it is too early to assess exactly the effects of the Ontarian LCRs. The renewable producers are still however attracted by the market. The precise share of the foreign companies is not known at the moment. Some established foreign companies⁹⁵ oppose strongly to LCRs but they still participate and agree to meet the requirements.⁹⁶

Quebec has LCRs in place since 2003. The objective is to create a local supply chain as well as new economic opportunities in regions with difficulties.⁹⁷ The table below shows the level of local content requirement according to tenders.

	First tender (2003) requirements
For first 200 MW	40% local content
For next 100 MW	50% local content
For the remaining 700 MW	60% local content
	Second tender and third tender (2005)
2GW in total	60% regional content with 50% at least sourced from Gaspésie region.

It can be observed that despite critics on LCRs, no important player withdrew from Quebec's market. Some even such as GE, Enercon, Repower, opened their manufacturing facilities.⁹⁸

⁹⁴ Idem.

⁹⁵ Vestas and General Electric

⁹⁶ Revista Eolica y del Vehículo Eléctrico; "Vestas signs deal to meet Ontario's local content requirements for wind farm"; 9 January 2012, available at: <http://www.evwind.es/2012/01/09/vestas-signs-deal-to-meet-ontarios-local-content-requirements-for-wind-farm/15711>

⁹⁷ ICTSD, "Local Content Requirements and the Renewable Energy Industry – A Good Match?" , Jan-Christophe Kuntze and Tom Moerenhout, May 2013

⁹⁸ Idem.

3) India

Until 2009 India required a 51% domestic equity ownership for the major industries in the renewable energy sector. This was not an official LCR but its objective was to enhance technology transfer and to force the foreign companies to use the local components and labour. In 2009 India has accepted 100% foreign direct investment in the renewable energy sector. Since it has a large market potential and labour force it is interesting for foreign investors.

In 2010 an ambitious renewable energy programme has been launched which required in its first phase to use components produced in India for the use of crystalline silicon technology. In the second round all eligible silicon PV projects were required to use cells and modules produced in India. The programme further required that 30% of the value of solar and thermal projects be sourced in India.

Various foreign companies have filed complaints with their governments against this programme. The US has already officially expressed its concerns about the LCRs scheme to the government of India warning that the measures may be breaching the WTO rules. The US referred to GATT and TRIMs Agreements. India claims that the measures are related to government procurement as the public power producer National Thermal Power Corporation (NTPC) purchases all the solar power that is generated.⁹⁹ India is preparing its defence in a possible WTO dispute.¹⁰⁰

Indian measures have also been questioned in relation to their effectiveness regarding their expected economic and employment benefits.¹⁰¹

4) Brazil

Brazil uses LCRs in its wind industry for the purposes of enhancing the domestic manufacturing of 1.5 MW or larger turbines. The LCR must be complied with to benefit from subsidized loans from Brazil's National Development Bank (BNDES). The loans are significant since they may be at a rate that is half as high as the best rate that can be offered by commercial banks.¹⁰² This attracts foreign companies such as Gamesa, General Electric, Kenersys and Sinovel, the latter being a Chinese manufacturer who announced it will open a local factory in Brazil.

⁹⁹ ICTSD, *"Local Content Requirements and the Renewable Energy Industry – A Good Match?"*, Jan-Christophe Kuntze and Tom Moerenhout, May 2013

¹⁰⁰ See A. Sen; The Economic Times, *"India to defend local-buy policy in solar mission as US, EU protest"*, 3 February 2012; available at: http://articles.economictimes.indiatimes.com/2012-02-03/news/31021273_1_solar-mission-trade-related-investment-measures-solar-energy

¹⁰¹ ICTSD, *"Local Content Requirements and the Renewable Energy Industry – A Good Match?"*, Jan-Christophe Kuntze and Tom Moerenhout, May 2013

¹⁰² ICTSD, *"Local Content Requirements and the Renewable Energy Industry – A Good Match?"*, Jan-Christophe Kuntze and Tom Moerenhout, May 2013. The reason is mainly the unforeseen rise of thin film deployment. In fact, it is estimated that 50% of the first batch (140 MW) will be thin film, which is enormous if compared to the position of thin film in the global solar market and amounts to around 14%.¹⁰² Two possible reasons for this are put forward. First, the exemption of thin film technologies from LCR exemptions contrarily to PV cells and modules which allowed cheaper thin films imports to achieve competitive advantage. Second, the access to international financing for project to which LCR did not apply such as those related to thin film is easier for solar project developers.

The LCRs are related to the weight component of the different components. In other words, it requires that a minimum weight of the final product is sourced locally. This means in practice that the wind turbine towers must be produced in Brazil. However, Brazilian steel is around 70% more expensive than the imported one. Thus the LCR results in an increase of the turbine costs. Not all companies have chosen to comply with the LCRs. The investors have attributed to the Brazilian LCR's their difficulties in developing a wind market in Brazil.

The Brazilian case highlights the costs associated with LCRs. Brazil has a market with large wind energy potential. The LCRs were rather strict from the beginning. While they do not discourage foreign investors from entering the market and transferring technology at the beginning, they restrain technology innovation. Indeed, the LCR are linked to the weight of the final product, which makes them in practice linked to steel. This obviously does not provide incentive for innovation. The interesting BNDES loans provide a good incentive for the moment but high steel prices are now discouraging foreign investors and affect the deployment of the full potential of the Brazilian wind energy.

5) South Africa

The South African Government organised bidding procedures for renewable energy projects in 2011 and 2012. It included LCRs in both rounds. The LCRs were initially set at 35% but the plan was to extend them in future to 75%. No timeline was specified.

Before the first round, the LCR was identified pursuant to a so called "Green Economy Accord". The government insisted on the need to reach vertical cooperation between the businesses and the labour community groups which supported the agreement. In order not to shift the burden to the final consumers, the government planned to introduce additional funding for energy producers. The Industrial Development Cooperation was to provide green economy funding for around USD 3 billion over five years. Furthermore, the South African Renewables Initiative, supported by European partner countries, set up low cost loans.¹⁰³

After the first bidding round, local producers estimated that a LCR of 35% was too low and they did not bid. It is estimated that around 400 jobs were lost and some businesses closed. Consequently, pressure mounted to increase LCRs to around 50-65%. The South African government increased the LCRs in the second bidding round and announced further increases in the future.¹⁰⁴

This shows the dilemma the governments face. On one hand, local industries insist on higher LCR's to take advantage of economic and employment benefits. On the other hand, the governments must attract foreign companies to invest in environmental goods

¹⁰³ Idem.

¹⁰⁴ Cleantechnica.com; "South Africa Aims for Green Jobs as well as Clean Energy's 2nd Round Renewable Energy Project Bidding closes"; 18 March 2012; available at: <http://cleantechnica.com/2012/03/18/south-africa-aims-for-green-jobs-as-well-as-clean-energy-as-2nd-round-renewable-energy-project-bidding-closes/>

and services and to transfer the technologies and knowledge. The governments must also consider the risk of high short-term power price escalation as a result of high LCRs.¹⁰⁵

6) Conclusion on LCRs

LCRs are obviously a reflection of a protectionist policy. While they may entice, for a period of time, domestic investments and localisation of production in the country adopting them, they also typically entail price increases, which must be compensated by subsidies. These policies may negatively affect both the consumers and the State budget.

The effectiveness of LCRs strongly depends on the market size and their adequate phasing-in. LCRs would only lead to price increases and few investments in small markets. They may also not bring the expected investment if they are too high at the beginning. However, if adequately planned and managed, LCRs may contribute to the expansion of a local capacity to produce and use EGS.

Another shortcoming of poorly drafted LCRs is that they may discourage innovation. The experience of Brazil is insightful in this respect, since its LCRs, which are based on the weight of the product concerned, lead to a concentration of investment, if any, on the sourcing of local steel above any other input. This has resulted furthermore in an almost unsustainable price increase of the final product.

As further indicated below, when LCRs are protectionist and do not really contribute the environmental preservation, they stand a good chance to be entirely prohibited by the World Trade Organisation.

III.4. Other

1) Tariffs

Tariffs on environmental goods are the most visible barriers to the dissemination of environmental goods that can be addressed. Inversely, reducing tariffs on environmental goods constitutes an important incentive to attract foreign investment in EGS.

The tariffs under the WTO, and the ongoing negotiations to eliminate them have been discussed in the first study.

A study of tariff profiles shows that most countries in the OECD, including the European Union and the United States, already apply very low tariffs (5 percent or below) on a considerable number of clean energy goods. Emerging developing countries such as Brazil, China and India apply tariffs between 5 and 20 percent for many types of clean energy goods. For solar PV modules, they tend to apply a zero percent duty¹⁰⁶. In general, lower-income countries, in Africa for example, apply higher tariffs. The reasons are related to their desire to collect customs revenue and to keep the possibility to practice import substitution.

¹⁰⁵ ICTSD, *“Local Content Requirements and the Renewable Energy Industry – A Good Match?”*, Jan-Christophe Kuntze and Tom Moerenhout, May 2013

¹⁰⁶ *Strengthening the Multilateral Trading System*, Clean Energy and the Trade System Group, Proposals and Analysis, ICTSD, World economic Forum, Friedrich Ebert Stiftung, Chatham House; December 2013

Research indicates that tariffs do not present the most important obstacle to the diffusion of clean energy goods and may be less important than other elements such as domestic environmental regulations¹⁰⁷. Nevertheless, the environmental negotiations under the WTO reveal that imports in the sectors of renewable energy and heat and energy management show substantial sensitivity to tariff reductions, more than other categories of environmental goods¹⁰⁸.

In any event, tariffs constitute the easiest barrier to address.

2) **Trade remedies: anti-dumping duties**

There are three kinds of trade remedies: anti-dumping measures, anti-subsidy measures and safeguards. Since subsidies are dealt separately and safeguards do not pose particular problems at this stage in the sector of EGS, this section focuses on anti-dumping measures, which are of particular concern for the promotion of environmental goods.

Antidumping measures are remedial duties that are added to the customs duty applicable to imports of a particular product, if these imports are made at a price that is dumped (i.e. below the normal value of the product) and if these imports cause a material injury to the domestic industry of the product concerned in the territory of the importing country.

Recently there has been a wave of antidumping actions against imports of environmental goods such as solar panels, wind turbines and biofuels. This trend can be observed especially among major producers of clean energy: EU, US, Australia, India and China.

In 2009 the EU imposed anti-dumping duties measures (and anti-subsidy measures) on imports of biodiesel originating in the US. In 2011, these measures were extended to include biodiesel originating from Canada to avoid circumvention. An antidumping investigation has been initiated also on biodiesel from Singapore, but due to lack of evidence of circumvention, the investigation has been terminated. In 2011 other anti-dumping investigations opened against imports of biodiesel originating in Argentina and Indonesia, leading to the imposition of anti-dumping measures in 2013. In 2013 imports of glass fibre filaments originating in China, imports of solar panels originating in China and imports of bioethanol originating in the US were also hit by antidumping measures.

In 2010 and 2013 Peru and Australia, successively, imposed anti-dumping (and anti-subsidy) duties against biodiesel originating in the US.

In 2011 the US initiated anti-dumping (and anti-subsidy) investigation against imports of wind towers originating in China and Vietnam and against solar panels originating in China. In 2012 India initiated anti-dumping investigation against solar modules originating in China, the US, Malaysia and Taiwan. It was also proposed to extend this investigation to imports from the EU and the US.

In 2012, China initiated anti-dumping (and anti-subsidy) investigation against imports of polysilicon originating in the EU, US and South Korea. There is a say that the investigation was initiated as a response to measures imposed on Chinese exports.

¹⁰⁷ Idem.

¹⁰⁸ Idem.

Each investigation has already an impact on imports at the time of initiation, irrespective of the duties that may eventually be adopted.

Taking the EU as an example, the import values that are affected by the measures is considerable. The trade remedies on solar panels from China, biodiesel from Argentina and Indonesia and biodiesel from US are at the top of EU measures currently applied in terms of import value affected. The import value affected by the trade remedies on solar panels is one and a half times as large as that of the combined total of all the EU's other trade remedies in force. All current EU trade remedies (about 120 measures) affect together an import value of about 8 billion Euros. Trade remedies on solar panels alone stand for 11.5 billion.

These actions have been criticised as they seem to clash with national and international environmental objectives. These measures have a negative effect on dissemination of clean energy and environmental goods and services. However, some studies claim that when a duty is imposed by an importing country, foreign exporting firms may be attracted to make foreign direct investment (FDI) in order to avoid the duty.

3) Clean Energy Standards and Certifications

Standards are sometimes enumerated as being among the most important non-tariff measures, which can affect trade in environmental goods. The effects depend on how they are designed and applied.

Standards and technical regulations are crucial for ensuring the safe and adequate performance of clean energy equipment for instance. They are also relevant for environmental services. For example, installation of solar equipment can be done effectively only by trained and certified installers.

Technical standards are important in creating confidence and trust between manufacturers, operators, owners, financial institutions, foreign investors and government authorities. Standards can be based on "design" or "performance". In general, deeper harmonization of standards enables easier and more rapid deployment of equipment across projects and countries. Minimum performance standards are also needed for clean energy producers for example to obtain project-specific financing from commercial banks. It is also useful for energy-efficient products since they are physically not distinguishable from less energy-efficient products. Labelling may be an important instrument to differentiate these products.

Standards can also be used to foster the use of EGS in downstream products. Certain standard can also impose environmentally sound production methods for given products. The effectiveness of such standards depends of course on the final product concerned.

Standards may have a discriminatory effect against the like products which would not be manufactured employing the required technology. As further indicated below, such discrimination may negatively affect the trade interests of other countries and lead to a challenge under existing international trade rules. Furthermore, the disparity of standards may operate as a strong non-tariff barrier to trade. Ensuring compliance with different foreign technical regulations and standards including tests and certifications represents costs for the producers and investors, such as translation of foreign regulations, hiring

technical experts, adjustment to production facilities. Excessive technical requirements may have an adverse effects on the production and investment of EGS.

A 2013 ICTSD study¹⁰⁹ identified several other issues pertaining to technical regulations that may have to be addressed:

- diversity of testing procedures and requirements to be conducted in national laboratories impose additional costs for producers / exporters;
- diversity of product requirements due to varying local conditions such as climate and electrical grid codes may impair the optimal circulation of EGS;

Hence, in the elaboration of standards, an adequate balance must be sought between the obvious benefits of well-conceived standards and the possible excessive burdensome nature of such standards, which might undermine the competitiveness of the products which are subject to them.

4) Intellectual Property Rights

The level of protection of intellectual property rights is an important factor in investment decisions. This is particularly relevant for investments in the clean energy sector since the technology involved is research and capital intensive.¹¹⁰

The role and impact of IPRs on the transfer of technology seem to be context specific. According to the OECD Policy Guidance¹¹¹, in remote rural locations of low-income countries for example, the need to expand energy access requires quick deployment of well-known renewable energy technologies, for which IPR protection might not be so crucial. Recent OECD work has demonstrated that in the case of African markets, very few climate mitigation and adaptation technologies are protected under IP regimes.

However, general strengthening of the IPR regime may play a positive role in emerging economies. Taking as an example waste and biomass, solar panels, fuel cells, ocean, hydroelectric, geothermal and wind turbines, emerging economies went from 5% of global patenting in the late 1990s to 20% of global patenting in 2008.¹¹² China accounts for a large part of this growth. Considering the percentage of total patent activity, a number of other emerging and developing economies are amongst the top five inventor countries in fields like hydro marine power (Brazil, India) and solar PV (India, Thailand).¹¹³

Consolidating IPR in emerging markets gives more incentives to foreign investors to transfer technologies there. According to the OECD, two thirds of the patenting in clean energy technology is being submitted by foreign companies. The OECD suggests that it

¹⁰⁹ Rai S., Payasova T., *Selling the Sun Safely and Effectively: Solar Photovoltaic (PV) standards, Certification Testing and Implication for Trade Policy*, ICTSD, 2013.

¹¹⁰ OECD Policy Guidance for Investment in Clean Energy Infrastructure, Expanding Access to clean energy for green growth development, an OECD Report to the G20, with contributions by the World Bank and UNDP, October 2013.

¹¹¹ Idem.

¹¹² Copenhagen Economics, 2009

¹¹³ OECD Policy Guidance for Investment in Clean Energy Infrastructure, Expanding Access to clean energy for green growth development, an OECD Report to the G20, with contributions by the World Bank and UNDP, October 2013.

may be useful for developing countries to elaborate a ‘fast-track’ process for patenting clean energy technologies¹¹⁴. The US provides an interesting model for such a ‘fast-track’ with its Green Technology Pilot Program that allowed reducing by 6 the time needed for patent final disposition¹¹⁵ (Ciardullo, 2012).

In this context, it remains however important to ensure the right balance between the quantity and the quality of patents received and the administration’s capacity to handle the possible flow of requests.

5) Contract enforcement and land rights

Many green projects or investments, in particular large scale ones, require elaborate and often interlinked contractual arrangements.¹¹⁶ Clean energy projects face several risks such as completion risk, technology risk, revenue risk, supply risk, weather risk, to name a few. The reliability of the different actors – both national and foreign – and their capacity to enforce contracts is essential for investments to take place.¹¹⁷ In this context, it is also important to ensure access to Justice at affordable prices.

As to land property issues, they are not specific to environmental goods and services as such. However, inadequate property registration systems can contribute to raise the transaction costs associated with investments in EGS.¹¹⁸ It is important to reduce processing time for regularising property rights. This can be done for instance through setting up one-stop-shops for registration.¹¹⁹ Furthermore, when granting land concessions (for hydro-electric power, geothermal energy, wind or solar energy), the protection of the most vulnerable populations is key for the sustainability of the investment. OECD enumerates prior mapping of the natural renewable resources and prior consultations with the different stakeholders as important elements in this regard¹²⁰.

III.5. Availability of the instruments under relevant International trade rules

This section highlights the limits that existing international trade rules applicable to Vietnam may impose on the above-mentioned policies. This should enable to better identify Vietnam’s margin of manoeuvre with respect to these policies and the instruments it has already adopted to promote the use of and investments in EGS.

¹¹⁴Idem.

¹¹⁵Ciardullo, J. Recent Developments in IP Law: What Every Green Tech Company Should Know. Columbia Center for Climate Change Law; 2012, available at: <http://blogs.law.columbia.edu/climatechange/2012/03/14/recent-developments-in-ip-law-whatevery-green-tech-company-should-know/>

¹¹⁶OECD Policy Guidance for Investment in Clean Energy Infrastructure, Expanding Access to clean energy for green growth development, an OECD Report to the G20, with contributions by the World Bank and UNDP, October 2013.

¹¹⁷Idem.

¹¹⁸Idem.

¹¹⁹World Bank, *Doing Business in a more Transparent World*, 2012.

¹²⁰ OECD Policy Guidance for Investment in Clean Energy Infrastructure, Expanding Access to clean energy for green growth development, an OECD Report to the G20, with contributions by the World Bank and UNDP, October 2013.

1) Incentives and subsidies

a) *General approach*

The third countries' experience explained above suggest that well suited and adequately designed environmental subsidies may enhance green foreign direct investment and thus have positive impacts on promotion and dissemination of environmental goods and services.

The WTO Agreement on Subsidies and Countervailing Measures (SCM) regulates the provision of subsidies under the WTO law. According to the SCM Agreement, a subsidy exists if there is a 'financial contribution' by the government or 'any form of income or price support', as a result of which a 'benefit' is conferred to the recipient. Thus, there is a subsidy when the government provides money that is not otherwise available in the market or at the same conditions (grant or loan), or when the government waives a tax that is normally due, or when the government sells input material at a price that is below market prices or when the government purchases items from the beneficiary at a price that is above the market price.

Tax incentives, such as those provided in Vietnam, feed-in-tariffs at above market prices, loans at preferential rates or land concessions at below market prices all constitute subsidies and they must be assessed according to the WTO SCM Agreement.

It should be noted that when a subsidy concerns the provision of a service, there are no relevant international trade rules that affect it in Vietnam. Vietnam indeed exempted itself from the national treatment provisions with respect to subsidies in the horizontal section of its schedule of services commitments (see first study) and the GATS agreement does not otherwise regulate subsidies in services. Furthermore, only the WTO regulates the granting of subsidies by governments. Neither ASEAN, nor APEC contain provisions in this respect. It must be expected, however, that the forthcoming EU-Vietnam agreement will address this issue.

The WTO SCM Agreement provides for three categories of subsidies: prohibited subsidies, actionable subsidies and non-actionable subsidies.

Prohibited subsidies are export subsidies and local content subsidies. Export subsidies are those that are contingent upon export performance. In other words, WTO law does not accept that a country provides a subsidy to a company or a group of companies based on the expectation that they will increase their exports. The final test in this respect is whether or not the subsidy would be granted in the absence of exports. If the response is no, the subsidy is prohibited. Seldom, environmental subsidies fall in this category. As to local content subsidies, these are subsidies that are provided at the condition that the recipient uses local input as opposed to imported input. Like export subsidies, this type of subsidy is heavily trade distortive. Hence a feed-in tariff above market rates that would be limited to the local production of energy is prohibited by WTO law. An accelerated dispute settlement procedure is available against prohibited subsidies with a view to eliminate them.

Actionable subsidies are non-prohibited subsidies that are specific to a company or group of companies. If it is established that a measure constitutes a specific subsidy, and if it causes 'adverse effects' to the interests of one Member or 'material injury' to the

domestic industry of a Member, an action can be taken against its negative trade effects. An adverse effect to the interests of one Member of the WTO exists, for instance, in case of downward price effects in various markets caused by the subsidy, or a loss of market shares in world markets¹²¹. In these situations, the subsidy is actionable before the WTO dispute settlement body (and should be withdrawn or its effects removed). The subsidised products can also be subject to countervailing duties in the affected domestic jurisdiction. As further indicated below, environmental subsidies that are provided to a preferred group of sectors or regions fall in this second category.

Non-actionable subsidies are subsidies that are neither prohibited nor specific. In other words, these are subsidies that are provided to all companies in all sectors, on the basis of objective criteria. It is important to ensure that the reason of the subsidy is unrelated to a particular sector of the economy. The subsidy is not specific if the eligibility of the subsidy depends on ‘objective criteria or conditions’, that is ‘criteria or conditions which are neutral, which do not favour certain enterprises over others, and which are economic in nature and horizontal in application, such as number of employees or size of enterprises’.¹²² The criteria or conditions must be clearly stated and explained by law, regulation or other official document as to enable the verification. Environmental subsidies that are available across all sectors could fall within this category. This is the case, for instance, of a subsidy paid to all companies that purchase clean energy or that dispose of their waste in an environmentally friendly manner. It is very important to avoid that the subsidies are specific to a particular sector, such as turbines, solar panels or others. Otherwise they are actionable¹²³.

Generally speaking, the tax breaks Vietnam offers pursuant to the Amended Law on CIT 2013 are not prohibited. However, since they are offered in special zones, or for groups of preferred products, they are specific. They can be continued if no trade partner complains that the subsidy affects its trade interests. There will unlikely be a complaint if the subsidy is intended to foster local investment in a local market only. However, if the investment is made by a company who takes substantial market share from its foreign competitors in whatever geographical market, a complaint may arise.

¹²¹L. Rubini, *Ain't Wasting Time No More: Subsidies for Renewable Energy, The SCM Agreement, Policy Space, and Law Reform*, *Journal of International Economic Law*, 15(2), pages 525-579, 2012

¹²² Article 2.1(b) of the SCM Agreement

¹²³ In this respect the Article 2 point b) reads:

“Where the granting authority, or the legislation pursuant to which the granting authority operates establishes objective criteria or conditions governing the eligibility for, and the amount of a subsidy, specificity shall not exist, provided that the eligibility is automatic and that such criteria and conditions are strictly adhered to”.

The article 2 point c) further specifies that:

“if, notwithstanding any appearance of non-specificity resulting from the application of the principles laid down in subparagraphs (a) and (b), there are reasons to believe that the subsidy may in fact be specific, other factors may be considered. Such factors are: use of a subsidy programme by a limited number of certain enterprises, predominant use by certain enterprises, the granting of disproportionately large amounts of subsidy to certain enterprises, and the manner in which discretion has been exercised by the granting authority in the decision to grant a subsidy. In applying this subparagraph, account shall be taken of the extent of diversification of economic activities within the jurisdiction of the granting authority, as well as of the length of time during which the subsidy programme has been in operation.”

As indicated in the first study, Vietnam also maintains an exemption from import duties for Foreign invested enterprises (FIEs), which invest in encouraged or special encouraged sectors and/or geographical areas. These exemptions are not subsidies under the SCM agreement, if the goods do not enter the Vietnamese customs territory and are re-exported. Hence they should not pose particular problems. However, if the imported goods are processed into goods which are then marketed in Vietnam, the duty exemption can be seen as an actionable subsidy and may raise difficulties if a foreign competitor complains.

Finally, the incentives related to land-use that Vietnam offers to investors who invest in encouraged sectors and geographical areas are subsidies if the land rent and land use fees are reduced or exempted. Since the incentives are for encouraged sectors and geographical areas, the subsidies are specific and thus actionable, although not prohibited. It is important to verify the overall international competitiveness of the beneficiary companies and assess which trade partner they are likely to disturb. This analysis will enable to assess the chances of a complaint. In case there is no complaint, the subsidy can be maintained.

b) Specific issues

Certain regulatory incentives are common in the renewable energy sector. Governments use mandates, containing quantity- or price-based minimum requirements, to raise the demand for, or the price of, renewable energy. Good examples are FITs (Feed-in-Tariffs) measures. There are at least two types of situations concerned: first, where the government requires that private operators purchase clean energy generation at a price higher than that for other energy types and second where the government itself is involved in the purchase of the energy, for delivery through a state monopoly, state enterprise or for resale to private sectors for example. The question whether these kind of measures amount to subsidies has been controversial and their status is also unclear under the legal definition of SCM Agreement.

According to the Agreement and as mentioned above, in order to qualify as a subsidy under the SCM Agreement, a financial contribution or a measure of income or price support has to confer a benefit. If the government is acting in the market, however, the determination of the existence of a benefit may be difficult. The WTO Appellate Body has stated that the reference in this case is the 'marketplace'. This may be difficult in the context of energy markets that have been considerably distorted by various forms of government intervention with as a consequence the fact that price and other market signals are not fully reliable.¹²⁴ However, the Appellate body in the Ontario FIT case clearly indicated that even if markets are distorted by government interventions, they remain markets and the price that is normally applicable in such distorted market can provide a relevant benchmark. In other words, if the government obliges economic operators to buy clean energy at a price that is lower or equivalent to the market price (even if distorted) the scheme is not a subsidy for the clean energy producer. It is one if

¹²⁴ L. Rubini, *Ain't Wasting Time No More: Subsidies for Renewable Energy, The SCM Agreement, Policy Space, and Law Reform*, Journal of International Economic Law, 15(2), pages 525-579, 2012

the compulsory price is above the market price. The same applies to direct purchases by the Government of by its energy distribution monopoly.

Another issue concerns specificity. All specific subsidies are actionable in theory (although in practice it all depends on whether or not a competing company is complaining). The problem consists on the fact that environmental policy often requires the measure to be as targeted as possible to be effective. In practice it means that there is clearly a preference for a specific measure. According to a well-established case-law the fact that a large number of undertakings or even sectors are affected by a measure is not enough to demonstrate that the subsidy is general and not specific.¹²⁵ Accordingly, there are propositions to develop illustrative lists of designed features and operational practices that should be presumed consistent with the “objective criteria or conditions” on the basis of which a subsidy can be provided without being considered as specific.

This being said, as indicated above, specific subsidies may be actionable only if they cause adverse effects to the interests of other countries. The examination of the adverse impact on trade must be based on a case-by-case approach and take into account different elements of the various legal tests. This is not easy to generalize. Thus, when a subsidy for the use of EGS is provided, most of the time it is important to assess which are the competitors in the same market that may be negatively affected by it and to what extent they are likely to complain.

It should be noted that WTO Members tend to tolerate subsidies in green energy sector unless they are export subsidies or local content subsidy. The situation may however change with the increased competition and industrial opportunities offered by EGS. For instance, the US has already complained against Vietnam for the alleged subsidy provided on wind towers originating in Vietnam.

2) Public Procurement

The existing non-binding international and regional instruments on government procurement are sufficiently flexible to allow EGS promotion through public procurement. The UNCITRAL Model Law on Public Procurement has recently incorporated several provisions that can be interpreted as encouraging states to favour the use of EGS in public procurement.

Regarding the WTO, if the procuring country is not a party to the WTO Government Procurement Agreement (GPA), a challenge against possible discriminations in favour of EGS in public procurement is rather difficult. If the procuring country is a party to the GPA and if the procurement is covered by its list of GPA commitments, discriminations favouring EGS in public procurement can be successfully challenged under the GPA. However, as indicated in the first study, Vietnam is not a party to the GPA and it can thus engage into unrestricted EGS promotion through public procurement.

It should be noted that Vietnam is participating in a voluntary initiative of ASEAN + 3 Network on Green Public Procurement and Eco-labelling.

¹²⁵ Panel Report, United States – Subsidies on Upland Cotton, WT/DS267/R, 21 March 2005

3) Local Content Requirements

A requirement made to an investor to use local content as opposed to imported content is a clear violation of WTO Law, more specifically of Article XI of the GATT, which prohibits all measures by the government which restrict or may restrict the volume of imports. Article XI also applies in public procurement. Hence, despite Vietnam is not a party to the GPA, it cannot impose a LCR in its public procurement law.

LCR must be distinguished from local content subsidies. The latter do not prohibit the use of imported input, but discourage it by providing a subsidy to those who use local content. However, despite the two measures are different, as indicated above, the WTO SCM agreement also prohibits local content subsidies.

It results from the above that if a country wants to maintain a LCR, it is at the risk of being challenged at the WTO. Its only defence could be a recourse to one of the exception provisions in Article XX of the GATT. As indicated in the first study, it is possible under Article XX of the GATT for a country to maintain import restrictions if these are necessary to protect human, animal or plant life or health or if they are relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption. In most of the cases concerning LCRs, the condition of necessity is not met. Indeed, there may be several other less trade restrictive methods that are available to achieve the environmental objective sought. As indicated above, China for instance, replaced its LCRs by FIT mechanisms. Furthermore, by definition, since a LCR intends to promote the use of local produced goods, the condition that the restrictions on imports are made in conjunction with restrictions on domestic production or consumption are typically not met.

4) Antidumping measures

Anti-dumping measures may only be imposed under the WTO law on dumped imports if the imports are causing material injury to the domestic industry of the importing country producing the like product. Such injury does not concern “environmental injury” to a country, but only a commercial one to competing companies. Hence, WTO Members cannot use the antidumping instrument as a hidden “border tax adjustment”. The latter are taxes on the embedded carbon in imported products, which compensates the tax that domestic manufacturers must pay on the production of the like products.

The conditions of the application of antidumping measures on environmental goods are strictly monitored. There are ongoing WTO disputes concerning the antidumping measures that are applied in solar panels, biodiesel and fatty alcohols.

Interestingly, certain WTO Members, such as the European Union, apply in addition to the conditions of the WTO Antidumping Agreement a “domestic interest” clause: the anti-dumping duty may only be imposed if it is not against the interests of the importing country (“the Union interest test”). The determination of such interest entails a policy debate which may consist in finding the right balance between fostering the use of affordable fuels or tools for the production of clean energy, and the need to foster investments in the production of such fuels or tools in the territory of the country taking

the measure. The conduct of such debate belongs to each country and it depends on many factors, such as the domestic availability and quality of the local products, local production capacity and capacity utilisation, etc.

The issue has not arisen in Vietnam yet, which does not seem to have launched antidumping investigations against imports of environmental goods.

5) Clean Energy Standards and Certifications

The WTO TBT Agreement contains provisions which prevent a country from designing and applying standards in a manner that would protect their domestic producers of environmental goods. Article 2.2 of the TBT requires that “technical regulations are not prepared, adopted or applied with a view to, or with the effect of, creating unnecessary obstacles to international trade”. The TBT Agreement encourages the WTO Members to base national regulations or parts of them on international standards, which are supposed “not to create an unnecessary obstacle to international trade”. The TBT Agreement also requires that technical regulations are non-discriminatory and the least trade restrictive measures reasonably available to achieve a legitimate objective.

The safest way to adopt standards is to rely on existing international standards. The challenge in this respect for Vietnam is to participate in the elaboration of international standards and to ensure that the adequate certification systems are put in place in the country.

It should be noted that the WTO addresses standards and technical regulations only insofar as they concern goods. As far as services are concerned, Article VI of the GATS contains a provision that is not entirely operational yet. At this stage it only demands that qualifications and licencing requirements that nullify or impair the trade liberalisation commitments are not more burdensome than necessary to ensure the quality of the service. Since this rule is very unclear, WTO Members have not been using it in their disputes. They prefer instead to negotiate better provisions in the GATS in the context of the ongoing multilateral negotiations (the Doha Round). The WTO Working Party on domestic Regulation has been established to develop coherent disciplines on domestic regulation of services. So far only special rules for the accountancy services have been developed.

Finally, as indicated in the first study, ASEAN rules must also be considered. Although there are no binding rules in the area of technical regulations and standards yet, ASEAN is indeed pursuing harmonization efforts in this area.

6) Intellectual property protection, contract enforcement and land rights

There are no WTO rules impairing the right of WTO Members to adopt IP rights, to strengthen their legal system, to ensure the enforcement of contracts and to secure land rights.

Regarding intellectual property, the WTO Agreement on the Trade-Related aspects of Intellectual Property Rights (TRIPs) actually requires the members to adopt domestic legislation that adequately protects them. Patents must therefore be granted on inventions of new “green” technology for instance.

As regards the enforcement of the contractual rights and land rights, this is domestic legislation that is fully lawful under the WTO and under existing investment treaties, to the extent it applies indiscriminately to domestic and imported goods or services or local and foreign investors. It should also be reminded that the granting of land rights at preferential rates is a subsidy, which may be specific and thus entail a possible complaint at the WTO.

7) Conclusion regarding the impact of international rules on the tools and instruments that are available to promote the use of and investments in EGS

The first study highlighted the fact that when shaping national policies and incentives for the promotion of environmental goods and services, Vietnam must consider its commitments at multilateral, plurilateral and bilateral levels. As indicated above, the most demanding instrument, and also the one that may entail the most adverse consequences should the incentives employed be illegal is the WTO SCM Agreement.

Currently, Vietnam does not seem to use incentives in the area of EGS which are prohibited under the SCM Agreement. From the information obtained in the first study, it appears that the current tax and land incentives Vietnam currently offers to investors in EGS are neither contingent upon export performance nor upon the use of domestic input as opposed to imported one. However, should Vietnam consider adopting FITs connected with a LCRs and a subsidy, this would clearly not be consistent with the WTO. Vietnam should be particularly cautious in this regard in the wind and solar sectors, since this situation may typically apply in these sectors.

Vietnam's current incentives are reserved to preferred sectors and geographical locations. As such they constitute specific subsidies. Should there be unhappy competitors which do not benefit from the same subsidies, an action against Vietnam's incentive programmes cannot be excluded. It is not possible in the context of this general study to assess the likelihood of such adverse action in the case of the incentives that are currently being provided by Vietnam. This requires indeed a case by case analysis in each affected sector. This study only raises attention on the need to carry out such analysis at the time of granting the incentive to a company or group of companies.

Vietnam does not seem to have other incentive mechanisms than those indicated in the first study and which are addressed above. Vietnam however, could consider adopting other incentive mechanisms, such as those favouring the use of EGS in public procurement. Vietnam indeed is not bound by any particular international obligation in this respect, except that no LCR is authorized, including in a public procurement context. Vietnam is also free to grant effective intellectual property protection to innovations in EGS and it is even obliged to do so for foreign goods and services pursuant to the TRIPs Agreement. Vietnam is also free of course to improve its overall legal system and the enforcement of its contracts for the purposes of creating a conducive environment for investments in EGS.

As repeatedly indicated above, Vietnam cannot adopt LCRs, unless it can demonstrate that they are necessary to protect human, animal or plant life or health, which is almost never the case.

Finally, Vietnam must be cautious of its national interests and the requirements of the WTO Antidumping Agreement should it wish to impose antidumping measures against imports of environmental goods, for the purposes of fostering investment in the production of such goods in its territory.

IV. RECOMMENDATIONS FOR IMPROVING OR ADJUSTING THE POLICY AND LEGAL FRAMEWORK IN VIETNAM

Based on the countries' experiences and the legal requirements exposed above, the following general recommendations can be provided at this stage regarding the policy tools and regulations that Vietnam could consider adopting to promote the use of and investments in EGS, in line with Vietnam's Socio-economic Development Strategy for 2011-2020. Of course these recommendations are still general, since the real impact of the instruments adopted in relation to the objective sought must be assessed according to the market and production realities of each sector in the area of EGS.

Business environment

- First and foremost, in order to foster investments in EGS, as for all investments, providing good business environment is key. While market opportunities in EGS are obvious, as discussed in the first study, stakeholders have addressed the need to improve certain elements of Vietnam's business environment affecting EGS:
 - Provision of a clear legal framework guiding policies on EGS and renewable energy projects;
 - Establishment of a single point of contact for enterprises;
 - Adoption of simplified and harmonized administrative procedures,
 - Establishment of a 'one-stop-shop' governmental services accompanying investments ventures and their registration, business licenses and authorizations;
 - Provision of channels of communication between the government and the companies with respect to all official information emanating from the Government;
 - Publication of and easy access to all relevant legislation and standards;
 - Provision of training on the application of new environmental regulations;
 - Adoption of unified procedures related to authorization and environmental regulations throughout the country;
 - Application of the same control systems to FDIs and local companies;
 - Drafting of laws and regulations in a way that is easy to understand and implement;
 - Consultation of companies when the Government plans to develop and introduce new legislation;

- Adoption of a transparent bidding law on construction of environmental protection projects;
- Building more public awareness regarding EGS;
- Ensuring the application of the law and strengthen enforcement mechanisms of laws and contracts;
- Protection of the most vulnerable populations when granting land concessions for the production of EGS.

List of EGS

- Secondly, it would be useful to develop an official list of EGS which would clearly and unambiguously benefit from the incentives the Government of Vietnam wishes to provide to EGS. Such list would provide credibility and certainty to potential investors. In drawing the list, the Government of Vietnam may wish to consolidate the Decision No. 39/2010/QĐ-TTg, promulgating the system of Vietnamese product categories and Article 150 of the Law on Environmental Protection (LEP) 2014 on classification of environmental services. It should also consider the existing APEC list of EGS.

Trade Liberalisation

- A recommendation for Vietnam would be to consider implementing the tariff reductions on environmental goods proposed under APEC. Accordingly, the Government of Vietnam should decide if existing tariff lines may be used or if there is a need for new ones. The new tariff lines would serve to apply reduced tariffs to “environmental goods” (“ex-outs”) and not to inadequate “non-environmental” products under the existing tariff lines. This however may be a difficult exercise which requires specialised expertise.
- Vietnam may wish to consider adopting more liberal market access opportunities to foreign services and service suppliers than those covered by its WTO or ASEAN commitments. It may also wish to extend the benefit of its commitments to other environmental services sectors. Such measure would better ensure the availability of the services concerned and foster dynamic and competitive markets in these sectors.

Incentives and subsidies

- A clear recommendation for Vietnam would be to provide well targeted financial incentives according to clearly identified objectives. The Chinese example is illustrative in this respect. For instance, one of the polled companies in the first study suggested that subsidies should be provided to users and consumers of compost services.
- Private and public sector should cooperate in a ‘discovery process of the market failures that would warrant a subsidy.
- When programming an incentive scheme, the recommendations provided in the conclusions of Section III.1 above concerning transparency, clarity, sharing of

risks with private sector, adequate public administration, neutrality and external evaluation of the subsidy deserve careful attention.

- In order to avoid actionability of a subsidy and for effectiveness purposes, it is preferable to provide subsidies that focus more on activities than sectors.
- It is important to establish a mechanism for the systematic assessment of the impact of an incentive on the competition in the market and to identify the economic operators that may be negatively affected by the subsidy and who are likely to complain.
- Export subsidies or subsidies contingent upon the use of domestic input as opposed to imported goods are prohibited. A subsidy therefore cannot be connected to a LCR or to a FIT if the latter operates in practice as a local content scheme (this could be the case in the wind and solar sectors).
- Subsidies should be granted only if they are necessary to produce the incentive effect and only until the obstacle justifying them exists. As a general rule, subsidies should only be temporary and subject to a sunset clause. The costs and distortions of the subsidies should be kept to a minimum.
- Should private investment be missing, the Government could consider investing itself, directly or through joint investments with private operators in clean energy projects. Once again, the massive capital contribution in such projects by the Chinese State is interesting to monitor.

Public procurement

- Vietnam should consider fostering green public procurement as a proven method to foster the use of and investments in EGS. Furthermore, the international legal system does not prevent Vietnam to do so.
- Vietnam should ensure that its public procurement law enables the use of a criterion of “best value for money”, as opposed to “lowest price”. Such criterion enables to integrate the benefits to the environment into the value of the contract.
- Procuring entities in Vietnam should define bidding requirements related to EGS with precision.
- It would be important to share information among procuring entities throughout the country and sensitize them to environmental objectives.
- The Government of Vietnam should convey its policy and needs regarding green procurement to the private sector and experts of the area.
- It would be important, in the selection of bidders, to find the right balance between the need to use proven technology and experienced bidders and the need to encourage innovation.

Local content requirements (LCRs)

- As a matter of principle, LCRs are prohibited under WTO law and a recommendation would be not to adopt them. In addition, LCRs are not effective in markets which remain small and in which there are insufficient investments. In

such situations, they may only lead to an increase of the cost of the final product (which could be clean energy or EGS), impair access to innovative products and technology transfers. Arguably, Vietnam runs the risk to be in such situation.

- If Vietnam nevertheless wants to consider adopting LCRs following the example of China in the wind energy sector, it should have confidence that it has a sufficiently big domestic wind energy resource and a domestic market for electricity that is large enough to benefit from economies of scale for the manufacturing of wind turbines. In that case, the LCR should not be too high at the beginning and it should be gradually phased in. The same applies to solar energy. A more detailed study should be conducted in both cases to assess the real possible impact of the LCR, considering Vietnam's realities.

Other

- Vietnam should exercise caution before imposing antidumping duties on imports of environmental goods, even if its domestic industry complains about them. However, at the moment, this does not seem to be an issue in Vietnam.
- Nevertheless, should Vietnam receive an antidumping complaint from its domestic industry of EGS (such as producers of clean fuels or of the tools for the production of clean energy), it must assess the right balance between fostering the use of affordable EGS and the need to foster investments in the production of such EGS in its territory. This depends on many factors, such as the availability and quality of the local products in Vietnam, local production capacity and capacity utilisation of the products concerned.
- Vietnam should review and assess the impact of all its standards and technical regulations that are relevant to EGS, so as to ensure they provide the obvious benefits of well-conceived standards, while avoiding they undermine innovation, access to technology and the competitiveness of the products which are subject to them.
- Vietnam should ensure that the adequate level of intellectual property protection is offered to innovations in the field of EGS, in accordance with the WTO TRIPS Agreement. Vietnam could also consider to elaborate a 'fast-track' process for patenting clean energy technologies.

BIBLIOGRAPHY

Primary sources

China

The Binding Law of the People's Republic of China; Adopted by the Standing Committee of the Ninth National People's Congress at the 11th Session on August 30, CLI.1.23176(EN); Area of Law: Construction Industry; 1999; available at:

<http://www.lawinfochina.com/display.aspx?lib=law&id=1014>

The Government Procurement Law of the People's Republic of China; Adopted at the 28th Meeting of the Standing Committee of the Ninth National People's Congress on June 29, 2002; available at: http://www.gov.cn/english/laws/2005-10/08/content_75023.htm

Law of the People's Republic of China on the Promotion of Clean Production; Approved by the Standing Committee of the National People's Congress (NPC) of the People's Republic of China in the 28th Session on June 29, 2002; available at:

http://english.mep.gov.cn/Policies_Regulations/laws/envir_elatedlaws/200710/t20071009_109966.htm

The Energy Conservation Law of the People's Republic of China, revised and adopted at the 30th Session of the Standing Committee of the Tenth National People's Congress of the People's Republic of China, 28 October 2007; available at:

<http://www.lawinfochina.com/display.aspx?lib=law&id=6467>

Circular; Economy Law of the People's Republic of China; Standing Committee of the 11th National People's Congress (NPC) of the People's Republic of China; 29 August 2008; available at:

<http://www.chinaenvironmentallaw.com/wp-content/uploads/2008/09/circular-economy-law-cn-en-final.pdf>

United States

The American Recovery and Reinvestment Act of 2009 (Recovery Act), 1603 Section of Treasury Program

U.S. Executive Order 13514—Federal Leadership in Environmental, Energy, and Economic Performance; 8 October 2009; Federal Register Presidential Documents Vol. 74, No. 194

European Union

Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts

Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors

International

General Agreement on Tariffs and Trade, World Trade Organization, 1994

Case Law

European Court of Justice; Case C-448/01, *EVN AG and Wienstrom GnbH v. Austria* (“EVN”) ECR I-14527, 2003

WTO; Panel Report; *United States – Subsidies on Upland Cotton*, WT/DS267/R, 21 March 2005

WTO; Appellate Body Report, *US – Foreign Sales Corporations Case*, WT/DS108/R, 17 March 2006

WTO; Appellate Body Report, *Canada — Measures Relating to the Feed-in Tariff Program*, WT/DS426/R, 6 May 2013

Secondary Sources

F. Veloso; “*Local content requirements and industrial development: Economic analysis and cost modelling of the automotive chain supply*”, 2001

J. Lewis and R. Wiser; “*Fostering a Renewable Energy Technology Industry*”, 2005

L. Carlsson and F. Waara; “*Environmental Concerns in Swedish Local Government Procurement*”; 2006; In: K.V. Thai and G. Piga (Ed.); “*Advancing Public Procurement*”, PrAcademics Press; Boca Raton; USA; available at:

http://www.ippa.ws/IPPC2/BOOK/Chapter_11.pdf

L. Nyiri, D. Osimo, R. Özcivelek, C. Centeno and M. Cabrera; European Commission; “*Public Procurement for the Promotion of R&D and Innovation in ICT*”; 2007; available at:

<http://ftp.jrc.es/EURdoc/eur22671en.pdf>

UK Department for Business Enterprise & Regulatory Reform; “*Competition for a Carbon Dioxide Capture and Storage Demonstration*”, Project Information Memorandum; page 8; 2007; available at:

<http://www.energysavingtrust.org.uk/Transport>.

C. Fuguo; “*China’s government procurement policy and Institutional Framework: History, structure and Operation*” in Khi V. Thai (ed.); “*International Handbook of Public procurement*”, CRC Press, Florida, 2009, pages 325-349

M. Ju, L. Zhang, L. Zhan, H. Ren and Z. Yang; “*Public Green Procurement in China: Development Course, Program Management and Technical Methods, Sustainable Public Procurement in Urban Administration in China: An Action under Europe Aid’s SWITCH-Asian Program Paper*”; No. 02-EN/CH; 2009; available at:

www.public-procurement.cn/English%20Document/Reports%201/Public%20Green%20Procurement%20in%20China.pdf.

C.A. O’Regan; Hastings Science and Technology Law Journal, “*Is Intellectual Property a Hurdle?*” 2009

S. Arrowsmith and others; “*EU Public Procurement law: an Introduction*”, EU Asia Inter University Network for Teaching and Research in Public Procurement Regulation; 2010; available at:

<http://www.nottingham.ac.uk/pprg/documentsarchive/asialinkmaterials/eupublicprocurementlawintroduction.pdf>;

L. Junfeng, S. Pengfei and G. Hu; Chinese Renewable Energy Industries Associations; Global Wind Energy Council; Greenpeace; “*China Wind Power Outlook*”; 2010

A.Ghosh; ICTSD; “*Governing clean energy subsidies: Why legal and policy clarity is needed*”; November 2011; available at: <http://ictsd.org/i/news/bioresreview/117779/>

L. Goldie-Scot; “*South Africa Decides to Give Wind and PV a Tender Embrace*”; Clean Energy Research Note, Bloomberg New Energy Finance (BNEF); 2011

European Commission; “*Buying Green! A Handbook on Green Public Procurement*”; 2nd ed.; 2011; available at: <http://ec.europa.eu/environment/gpp/pdf/handbook.pdf>.

J. Park, S. Zhao; “*Shifting Priorities: Encouraged Industries for Foreign Investment and the 12th Five Year Plan*”; Asia Briefing, Volume XII; Number V; 2011

J. Shi, S. Zhao, C. Micheal, N. Dapprich, D. Shira and Associates; “*An Overview of China’s Renewable Energy Market*”; Asia Briefing; Volume XII; Number V; 2011

Ministry of Commerce; People’s Republic of China; The Catalogue for Guidance of Foreign Investment Industries - Amended; 2011; available at: <http://english.mofcom.gov.cn/article/policyrelease/aaa/201203/20120308027837.shtml>

E. Ku, D. Shira and Associates; “*Selected Tax Incentives in the Environmental Sector*”, Asia Briefing; Volume XII; Number V; 2011.

C. Fuguo, Y. Yuying and Z. Fen; “*China Green Public Procurement Program: Issues and Challenges in its Implementation*”; 2011; available at: <http://www.ippa.org/IPPC4/Proceedings/07GreenProcurement/Paper7-6.pdf>.

Y. Qiao and C. Wang; “*Issues and Challenges in Implementing China’s Green Public Procurement Program*”; Journal of Environmental Protection, pages 1034-1045, 2011

C. E. Kreycik, T. D. Couture and K. S. Cory; “*Procurement option for new Renewable Electricity Supply*”; NREL; December 2011, available at: <http://www.nrel.gov/docs/fy12osti/52983.pdf>.

Revista Eolica y del Vehiculo Electrico; “*Vestas signs deal to meet Ontario’s local content requirements for wind farm*”; 9 January 2012; available at:

<http://www.evwind.es/2012/01/09/vestas-signs-deal-to-meet-ontarios-local-content-requirements-for-wind-farm/15711>

Sen; The Economic Times, “*India to defend local-buy policy in solar mission as US, EU protest*”, 3 February 2012; available at:

http://articles.economicstimes.indiatimes.com/2012-02-03/news/31021273_1_solar-mission-trade-related-investment-measures-solar-energy

The Kearny Alliance; “*China’s Solar Industry and THE U.S. Anti-Dumping/Anti-subsidy trade cases*”; May 2012; available at:

http://www.chinaglobaltrade.com/sites/default/files/china-global-trade-solar-manufacturing_may2012_0.pdf.

D. Leistikow, “*Beyond Solyndra: How the Energy Department’s Loans are Accelerating America’s Transition to a Clean Energy Future*”; U.S. Department of Energy; June 2012; available at:

<http://energy.gov/articles/beyond-solyndra-how-energy-department-s-loans-are-accelerating-america-s-transition-clean>

J. Ciardullo; “*Recent Developments in IP Law: What Every Green Tech Company Should Know*”; Columbia Center for Climate Change; Law; 2012, available at:

<http://blogs.law.columbia.edu/climatechange/2012/03/14/recent-developments-in-ip-law-whatevery-green-tech-company-should-know/>

World Bank; “*Doing Business in a more Transparent World*”; 2012.

L. Rubini; “*Ain’t Wasting Time No More: Subsidies for Renewable Energy, The SCM Agreement, Policy Space, and Law Reform*”; Journal of International Economic Law, 15(2), pages 525-579, 2012

J. Cart; “*Federal Plan Designed to Create Large Solar Energy Plants*”; L.A. TIMES; October 2012

A. Herve and D. Luff; “*The Trade Implications of Procurement Practices in Sustainable Energy Goods and Services*; ICTSD; November 2012.

Global Environment Fund; *“A Strategy for Investing in Emerging Market Environmental Industries”*; 2013; available at:

http://globalenvironmentfund.com/wpcontent/uploads/2013/02/Emerging_Market_Environmental_Industires.pdf

ICTSD; *“Local Content Requirements and the Renewable Energy Industry – A Good Match?”*; Jan-Christophe Kuntze and Tom Moerenhout, May 2013

UNCTAD, Ad hoc Expert Group Meeting on Domestic Requirements and Support Measures in Green Sectors; *“Economic and Environmental Effectiveness and Implications for Trade”*, Local Content Requirements and Green Economy, 13-14 June 2013

UNCTAD; Ad Hoc Expert Group Meeting on Domestic Requirements and Support Measures in Green Sectors; *“Economic and Environmental Effectiveness and Implications for Trade”*; June 2013

OECD Policy Guidance for Investment in Clean Energy Infrastructure, *“Expanding Access to Clean Energy for Green Growth Development”*, an OECD Report to the G20, with contributions by the World Bank and UNDP, October 2013

ICTSD, World economic Forum, Friedrich Ebert Stiftung, Chatham House; *“Strengthening the Multilateral Trading System”*, Clean Energy and the Trade System Group, Proposals and Analysis,; December 2013

S. Rai, T. Payasova; *“Selling the Sun Safely and Effectively : Solar Photovoltaic (PV) standards, Certification Testing and Implication for Trade Policy”*, ICTSD, 2013.

European Commission; *“Protecting the Environment and Economic Growth: Trade Off or Growth Enhancing Structural Adjustment”*; available at: http://ec.europa.eu/economy_finance/publications/publication7726_en.pdf

UCLA Journal of Environmental Law and Policy; Issue 32(2); 2014

SEIA; Issues and Policies; *“Solar Investment Tax Credit (ITC)”*; <http://www.seia.org/policy/finance-tax/solar-investment-tax-credit>

U.S. Department of Energy; About SunShot Initiative; available at:
<http://www1.eere.energy.gov/solar/sunshot/about.html>

U.S. Department of Energy; Office of Energy Efficiency and Renewable Energy;
“*Scaling Up Nascent PV At Home*”; available at:
<http://energy.gov/eere/sunshot/scaling-nascent-photovoltaics-home>