CTF PRIVATE SECTOR PROPOSAL

Name of Project or Program	Vietnam Sustainable Energy Finance Program (V-SEF)
CTF amount requested	Investment – up to US$28 million equivalent in loans of which up to US$2.5 million equivalent could be convertible to grant based on meeting certain performance indicators (see Investment Terms section below) Advisory services component - US$1.4 million Implementation and supervision budget - US$600,000
Country targeted	Vietnam
Indicate if proposal is a Project or Program	The Program proposal represents the first comprehensive initiative to help develop Vietnam's Sustainable Energy[1] (SE) private financing by supporting local financial institutions and addressing market barriers on a programmatic basis.

DETAILED DESCRIPTION OF PROGRAM

Fit with Vietnam Country Investment Plan (CIP)

This proposal is consistent with Vietnam's Country Investment Plan (CIP) which was endorsed by the CTF Trust Fund Committee on December 2, 2009 and Supplemental Report which was circulated to the Trust Fund Committee on June 9, 2010. Vietnam's CIP describes the country's GHG emissions profile and indicates that energy efficiency, renewable energy, and public transport are three key strategic areas to apply CTF resources, including through direct private sector initiatives. In addition, the Vietnam CIP specifically endorses IFC to develop a "private sector financing program for energy efficiency, cleaner production and renewable energy".

Vietnam acceded to the UNFCCC on Nov 16, 1994, and ratified the Kyoto Protocol on September 25, 2003. The first National Communication on Climate Change was submitted to the UNFCCC Secretariat in November 2003, and preparation of the second National Communication is currently underway, expected to be submitted in 2010. As part of the preparation process, the government is reviewing its GHG emissions profile and assessing its mitigation and adaptation activities.

Overview of IFC's Sustainable Energy Finance Program for Vietnam

This program is part of an IFC initiative to scale-up investments in energy efficiency for the industrial, commercial, and residential sectors with a particular focus on SMEs and small-scale renewable energy projects. IFC's program will target approximately three to four commercial private banks and/or leasing companies, and address existing market barriers through advisory services as a means to catalyze market transformation. The program specifically seeks to develop a track record of SE investments which would spur other financial institutions (FI) to develop similar programs without the need for additional donor funds. The expected increase in access to finance and reduction of market barriers are expected to help reduce GHG emissions in Vietnam's industrial, commercial and residential sectors. The program will be designed and implemented in coordination with IBRD. IBRD plans to support the government in its energy efficiency/cleaner production efforts, but with a focus on new industries and

[1] Sustainable Energy refers to projects that implement energy efficient or cleaner production measures and technologies, and small scale renewable energy projects that reduce fossil fuel consumption.

ESCO support; IBRD would work mainly through government channels and state-owned banks. The IBRD program is planned for FY12 (July 2012-June 2013), and is still to be designed. There is an agreement between IFC and IBRD management that coordination will take place to ensure that IFC and IBRD programs are complementary.

In addition to IFC and IBRD, there might be another energy efficiency program by ADB focusing on large heavy industries such as cement and steel. The ADB proposes using CTF resources for a pilot program to finance waste heat recovery technologies in 10 large cement companies, which are mainly state-owned enterprises (SOEs).

The IFC initiative differs from and complements ADB's proposed program in that it addresses the wider need for finance and the reduction of market barriers such as knowledge and technical capacity across several sectors including industrial SMEs, commercial and residential. While sector focused initiatives can be effective for large GHG emitting industries such as steel and cement, commercial and SME sectors, which require uptake by many smaller companies, require an intermediary approach to be effective. IFC's program will catalyze local private FIs to develop lending programs for smaller sized carbon reduction investments and to reach market segments and market niches, which would not be sufficiently covered by the IBRD and ADB programs.

Vietnam's GHG emissions profile

Vietnam has been one of the fastest growing economies in Asia for the last two decades, with real gross domestic product (GDP) growth averaging 8.0% annually between 2003 and 2007. For the past 10 years, energy consumption has been increasing faster than GDP, averaging about 14% per year. The commercial energy use / GDP growth elasticity was very high at 1.7. This is attributable to a **swift expansion of industries and motorized transport, and increased use of fossil fuels for power generation**.

In 2005, Vietnam was ranked 41st in the world in GHG emissions. Estimated total emissions in 2000 were 114.6 million tons of carbon dioxide equivalent ($MtCO_2e$). Energy related emissions in 2000 were 48.4 $MtCO_2e$ (WRI-CAIT), and are projected to reach 101.5 $MtCO_2e$ in 2010 (APERC 2006), with per capita emissions increasing to over 1 ton per person. Although emission per capita remains low compared to other countries like China and Thailand, **the annual emission growth rate in Vietnam is extremely high, and constantly on the rise** (6.7% per year between 1996-2000; and 10.5% per year between 2000-2005).

Very high energy and GHG intensity is observed in the residential and industrial sectors. Energy efficiency in residential and industrial electricity use is low while consumption has been growing rapidly. Industrial and residential consumers are the two dominant electricity users in Vietnam: in 2006, the residential sector accounted for 43% of Vietnam's electricity consumption, and industry accounted for 48%. CO_2 emissions from electricity generation can be ascribed in roughly equal shares to the residential and industrial sectors, making **industry the biggest (direct and indirect) GHG emitter in Vietnam, followed by the residential and transport sectors.**

As mentioned, principal energy-related emissions sources are the industry, electric power, residential, and transport sectors. By 2010, the relative shares of *GHG emissions* are estimated to be: industry – 33%, electricity generation – 27%, transport – 24%, residential – 7%, commercial – 6%, and other non-power combustion – 2% (APERC 2006). Going forward it is projected that in the period 2010 – 2030, GHG emissions from power generation will increase by 248% from 27.7 $MtCO_2e/y$ to 96.5 $MtCO_2e/y$, industry sector emissions will increase by 163% from 33.9 $MtCO_2e/y$ to 89.2 $MtCO_2e/y$, and transport sector emissions will increase by 214% from 24.3 $MtCO_2e/y$ to over 76.3 $MTCO_2e/y$ (APERC 2006).

Sustainable Energy Market Description

The industrial sector accounted for 45% of total *final energy consumption* while transport accounted for 27%, household sector accounted for 22%, and commercial/public services- 8%. Industrial and residential consumers are the two dominant energy use sectors in Vietnam, with industry consuming 53% of the total and residences 39%. Commercial and public sector electricity use was reported at 8%.

As Vietnam's economy continues to grow, and the country enters industrial expansion phase, energy demand and electricity demand for industries will grow very fast, while energy supply is severely constrained. If industrial

energy use continues to triple over the next ten years as it did in the past, Vietnam will have a large energy demand-supply gap. **The immediate priority of energy conservation therefore lies with industries' retrofits, although opportunities do exist in commercial and residential sectors as well.**

Historically, Vietnam's economy used to be dominated by large state-owned enterprises. However, in the past 10 years, the private sector has been growing rapidly, and it consists of mainly SMEs (approx. 450,000 companies registered by 2009). It is this sector that created 3.5 million new jobs between 2005 and 2008, while the FDI sector created 1.4million new jobs, and the SOE sector shrank in size. **The competitiveness of Vietnam's economy therefore will be heavily dependent on the competitiveness of its SME sector.** Unlike the SOE sector which often has better access to finance and government subsidies, SMEs are often constrained both in their own resources and in access to commercial loans. Most of government/donor support and demonstration projects for energy efficiency or cleaner production are for SOEs, leaving SMEs in the private sector behind both in terms technical support as well as financial support. **The priority of this sustainable energy finance program therefore will be SMEs in industrial, residential, transport, and commercial sectors.**

The government's national target program on energy conservation has been operational since 2007, and focused on policy improvements, awareness raising and donor fund mobilization for research and demonstration. A big gap in the government program, and also in the broader market is private sector financing mobilization. So far, no government or donor program specifically targets the financial sector as a means of scaling up sustainable energy projects . The Ministry of Industry and Trade understands that private sector financing is important given the state budget constraints, and current widening deficits. It has therefore encouraged IFC and WB to help create a larger lending program in the country and mobilize commercial banks to participate in financing energy efficiency investments. The Ministry is now in the process of drafting an Energy Conservation Law, which will make energy audits and energy efficiency improvements mandatory for 1,200 designated companies, while a voluntary approach will be applied for SMEs at least in the first phase. At the same time, the government is committed to continue its energy price reforms, removing subsidies for fuel, and electricity, leading to market prices by 2012, all of which should lead to growing demand for energy efficiency investments in the future. Electricity prices in Vietnam have increased by 10-20% each year since 2007.

Sustainable energy investments typically have attractive rates of return but are not typically undertaken under a business as usual scenario for a number of reasons as outlined below. The government sees energy efficiency promotion as a priority to help address the energy demand-supply gap, as well as to increase efficiency and competitiveness of the economy. However, the government has been struggling in finding good incentive mechanisms to promote sustainable energy broadly across sectors. The barriers for sector wide uptake of energy efficiency projects include:

Company related barriers

1. Capital expenditures are typically made to replace old technology/machineries, to increase capacity and to upgrade technology from a quality perspective. Companies are often not aware of or are inadequately informed about the energy savings potential and energy saving options when making new investments. Companies in Vietnam, especially SMEs are not aware, and do not base their investment decisions on the potential energy savings that can be achieved with new investments. They often make decisions based on the lowest cost options without considering the whole life-cycle costs, which include energy costs.

2. Many companies have never conducted energy audits in the past, and don't have either good management/monitoring systems of energy costs, thus they find it hard to verify the level of possible savings. SMEs especially don't have resources to hire external consultants who can help review their production systems and technologies and are therefore reluctant to undertake external consultancy services that they have to fully pay for. SMEs that do want to hire external consultants also hesitate because they are not sure where to go and whether consultants are reliable.

3. Finally, there is a lack of suitable financing arrangements in the market. Local financial institutions assess companies on their current financial position and past financial performance and the expected savings or cost reduction expected from the new energy efficient equipment/technologies are not reflected in past financial

statements. In addition, local financial institutions avoid financing equipment/technologies or require high levels of collateral (150%) which many SMEs do not have. Financing terms have been often restrictive and unattractive for customers. In addition, companies with limited investment funds are often seeking off-balance sheet solutions which are not currently available in the market. Constrained access to finance makes companies, especially SMEs, unable to make investments, or they only can opt for small incremental upgrades within their immediate internal resources' capacity. This also limits them to the choice of equipments/technologies that are sub-standard, not optimal for them and typically not the most energy efficient.

Vietnam's Financial Market Description

Financial institution related barriers

1. Financial institutions in Vietnam are reluctant to provide SE[2] financing as a specific mainstream business line. Their current product offerings are mainly corporate loans, trade finance, working capital, etc… which are all collateral based. Many local FIs consider EE/CP or RE as something out of their comprehension, too technical and risky. They often don't have a good understanding and experience with EE/CP/RE technologies and market opportunities. FIs have limited internal capacity to appraise SE projects, and verify technical information provided by clients. If local FIs have to hire technical consultants, this will drive up transaction costs, and slow down the loan process, and in addition they don't know how reliable external consultants can be. FI staff often find it hard to speak the technical language and are thus uncomfortable discussing technical issues with clients regarding SE. This restricts their ability to market these types of SE financing products widely and effectively. In addition, the initial start-up costs for local FIs to go into this new SE business area can be rather significant, especially if they have to conduct market studies, sector studies, hire technical staff, train credit officers, and relationship officers, develop a marketing strategy, and establish the whole system for deal generation, appraisal, technical verification, and loan monitoring. As a result of these hurdles, both real and perceived, financing at current market rates, which includes interest rate caps, do not provide FIs with a sufficient return to venture into the "sustainable energy" business line.
2. Financial institutions in Vietnam, especially the private FIs, have limited access to long term funding. Their resources are much more dependent on the mobilization of short-term deposits. In the past two years, the concern over inflation and speculation on interest changes have made depositors stick to short-terms, often only up to 6 months. Funding with maturities of more than one or two years can be quite limited from commercial banks. Even without extending current loan tenors, local financial institutions face a major maturity mismatch. While the payback on some investments can be shorter term (2-3 years) many SE investments require longer term funding; but since local private FIs can't access long-term funding, they offer long-term loans to their clients only in exceptional cases. The EE and CP concepts are also relatively new in Vietnam, and there is no track record either from the end-users' side as well from the FIs' side. This area therefore is perceived to carry significant risks as mentioned above.
3. The government has ambitious plans for energy conservations. Through EE/CP investments, it aims to achieve energy savings equivalent to 5-8% of total energy consumption each year between 2010 and 2015. However, it has no resources to support private sector lending for such programs. Small credit lines by the government were set up through Vietnam Development Bank on ad-hoc basis and to provide policy loans (sometimes offered at a zero interest rate). This makes local FIs even more reluctant to enter this business area, fearing they would not be able to offer competitive prices to clients. Additionally, over the past one year due to the global crisis, the government was concerned about inflation, and thus decided to cap lending interest rates, and credit growth rates by commercial banks. This practically ties up credit supply and makes it difficult for FIs to make profit, and for SMEs to access loans. For the time being, we don't see other sources of large scale funding to local FIs for SE in Vietnam other than through the CTF and IFC/WB/ADB combined funding. Other bilateral donors'

[2] References to sustainable energy (SE) or energy efficiency (EE) in this document include both energy efficiency and small scale renewable energy since both technologies can be used to achieve the same objective (reducing energy consumption) for end users.

funding is often limited in the form of grants, and mainly for few demonstration programs only.

Summary of the Program and use of CTF funds

The proposed Program is designed to support the government's initiatives to scale up energy efficient and cleaner production investments by encouraging investments from end users by increasing access to appropriate finance for such investments. The proposed Program will include both investment and advisory services components to support the scale up of SE projects in Vietnam's SME sector, both in industrial and commercial, as well as in the residential sectors. The investment component aims to transform Vietnam by way of the financial sector towards low-carbon, climate-conscious behavior, and in doing so, support the economic competitiveness, sustainable development, and social well being of the people. The proposed Program will encourage local FIs to develop appropriate lending programs for SMEs to invest in EE/CP projects and small-scale RE investments in industrial and commercial, as well as residential sectors. The aim is to reduce energy consumption by output unit, save input materials, reduce waste volumes, thus reducing GHG emissions. Financial institutions can be a very effective channel to educate their clients and enable wide scale uptake of new EE/CP technologies. Working through local FIs allow us to reach the scale required to have a market wide impact because local FIs outreach to end-users through programmatic portfolios of EE/CP investments in their client networks would be much larger, more effective, and more sustainable than attempts with few targeted individual project investments.

The Program aims to have interventions with strategic financial institutions which can establish a track record and influence other FIs. The Program intends to include both commercial banks and leasing companies. The leasing sector in Vietnam is just emerging now, and many SMEs are turning to leasing companies for small incremental investments (typically 50,000 to 100,000 USD). Although deal size is small, they are often repeated. Leasing is considered an effective way of keeping EE investments off-balance sheet and makes smaller investments more attractive. Leasing companies can finance a variety of technologies including boilers, compressors, chillers, control systems, EE motors, co-gen units, etc. Leasing companies also don't often require, or require less, collateral from SMEs. It is expected that once a track record has been established for the underlying investment portfolio, and other banks see that EE and CP investments can be lower risk (because they reduce costs and improve the credit profile of the end user) for the same return, other FIs will make the upfront investment necessary to develop similar lines without the need for subsidies. It is also expected that FIs would be willing to borrow, either from MDBs or in the capital markets, longer tenor funding to support this business line and avoid their current funding mismatches.

The use of financial intermediaries to promote private sector development is a successful business model which has been applied by IFC in other emerging markets, but not yet in Vietnam. IFC started looking at the sustainable energy market in Vietnam last year, and recognized the intervention gaps where IFC can make a difference - ie. financial sector involvement and funding mobilization. While IFC has the ability to lend to Vietnamese banks on longer tenors, it does not have the ability to offset the initial costs of developing EE and CP lines through concessional interest rates. CTF will allow the IFC team to provide incentives to strategic first mover FIs (that face uncertainty about the costs of developing this new line of business and its expected portfolio performance – in terms of losses) so that they change their behavior to undertake this new business. CTF will also allow IFC to be able to move quickly with multiple banks, and thus push the programmatic approach in the local market to reach market wide transformation at a faster rate.

CTF support to FIs will have a significant impact on the market and the donor community in Vietnam. It will show that the financial sector can be a crucial player in energy conservation and climate change, and that private sector financing is an effective means to scale up climate financing with proper incentives, beyond the government and donor subsidies that were limited to a number of SOEs and demonstration projects at the end-user side. IFC's experience in other markets like Central Europe, Russia and China clearly shows that once a few strategic FIs enter the market and establish themselves as market leaders, other FIs will follow suit as they recognize the viability and value SE financing products can bring to their business. We expect that once several private sector FIs move, state-owned banks in Vietnam will also change their behavior, and start to change their lending strategies to large

corporations. Additional benefits that can come from the availability of financing for SE technologies include the development, stimulation of service sectors, such as energy audit, energy management training, project development, equipment supplies, ESCO services, etc.

The Program's advisory services component will support the investment component by supporting market development activities (promoting knowledge and technical expertise on the end user side), and capacity building for participating FIs. It will also make sure that lessons learnt and experience of sustainable energy financing will be shared across the local financial sector, as well as with other countries in East Asia.

The Investment Component

Through the Program, together with the advisory services component, IFC will provide a combination of its own and CTF financing to private commercial banks and/or leasing companies. The terms of financing will be designed in a way to adequately address the barriers described earlier and to catalyze the uptake and scale-up of EE investments in Vietnam with minimum level of concessionality required. Through the Program, IFC would lend up to US$100 million equivalent of its own funds, leveraged by up to US$28 million equivalent from the CTF. The combined funds would be used to on-lend to individual projects varying between US$0.2-3 million of loans/leases, targeting investments in EE and possibly small-scale RE primarily in private industrial companies/SMEs. The expected life of the proposed sub-projects will be up to 14 years depending on the expected portfolio of each financial institution. The Program will also support financing provided to the commercial, residential and public sectors depending on each participating FI's portfolio focus.

Sample EE investments under the Program can include production technology upgrades, lighting, motors, heating and cooling, pumping systems, cold storage, and automated control systems, as well as cogeneration systems that produce electricity from waste heat generated for industrial uses, among other projects which help to deliver energy services more efficiently.

The Program's financing will be structured to incentivize FIs to develop an SE line by addressing their perceived risks and the costs associated with the learning curve and establishment of a SE business. The Program proposes to utilize two different potential structures to incentive financial intermediaries, depending on the FI's own risk profile and strategy. The first is a lower interest rate CTF loan, which would offset the expected additional costs of establishing the new SE business line (in this case the subsidized interest rates are not necessarily passed on to end users but likely be kept within the banks to incentivize staff to grow the business faster or fund other program start-up costs); the second is a market interest rate loan with a portion of the loan (up to $2.5M in aggregate among all subprojects) convertible to grants if the bank achieves certain eligibility, loan quality and disbursement targets (by incentiving a faster rate of disbursements but maintaining a standard of quality for all loans, the CTF promotes faster uptake of the program – and therefore faster market transformation. The second structure has been successfully tested in Latin America and has had the effect of fast-tracking the uptake of EE investments. In the convertible loan/ grants structure, grants would materialize as a "forgiveness" of repayment of a portion of the CTF loan (eg. to a maximum of 2% of the total facility amount – i.e. including IFC's portion of the loan). This convertible loan/grant would only be offered to participating FIs who have significant difficulty in entering the SE financing market. During the scoping and follow-up preparation for this Program, IFC discussed a number of financial products with potential FIs, including risk sharing facilities (RSFs). However, FIs in Vietnam are not willing to use this new instrument for three reasons: i) it is considered too complex; ii) FIs face liquidity issues which RSF don't help to address, and iii) local regulators are not familiar to this kind of risk-sharing facilities and require FIs to obtain a separate permit, and in any cases FI still have to provide full loss provisions. Local FIs therefore prefer credit lines with incentives built in through appropriate interest rates and convertible loans/grants.

Terms of the CTF funds

Summary of CTF Terms: Note that final agreement to provide CTF funding to any FI would be subject to a full due diligence of each project and approval by an internal IFC Approval body as well as IFC's Board, per the CTF

private sector guidelines. The terms of each individual CTF transaction will be reviewed and approved by an Investment Review Committee which is independent from and different to the Investment Review Committee that approves the terms of the IFC investment.

The Advisory Services Component

The Program will include an advisory component which will be designed based on IFC's previous experience in other markets. The advisory component of the Program will be structured to support both the financial institutions and the end-users, including energy efficiency/cleaner production equipment vendors and energy efficiency service companies (ESCOs) or environmental services companies. This feature will aim to make the Program attractive to FIs, particularly since most of them have not had extensive experience in the area of SE financing. At the same time the advisory component will strengthen the long-term impact of market transformation by strengthening local capacities of technical service providers, market awareness and know-how.

The objective of the advisory services component is to support the implementation and scale-up of SE projects on several levels:

1. By capacity building for financial institutions so they can become active in sustainable energy financing. This will comprise training on energy efficiency finance techniques, credit analysis, marketing, support with financial product development, and portfolio reporting.
2. By conducting sector studies that would help FIs to identify relevant target segments for them, and guide them in marketing efforts to relevant end-users.
3. By supporting end-users to undertake energy audits, technical feasibilities studies, and evaluate different technical alternatives for efficiency improvements; and
4. By supporting awareness raising, dissemination of information and lessons through conferences, seminars and workshops, as well as media promotional campaigns. Business associations will be also involved.
5. By building capacity for local technical service providers including ESCOs, and training institutions that serve SMEs.

There will be close coordination with the IBRD program which intends to use GEF resources to build capacity for policy makers, and establish labeling and standards for industrial equipments. A possible overlapping area for IFC and IBRD is ESCO development support. However, IFC's program would be designed to complement or expand on the activities undertaken by IBRD, eg. IFC may limit its TA to ESCOs only in financial structuring of their deals with end-users instead of overall technical capacity building. The IBRD program is also still under design and conversations with their team are ongoing.

FI Capacity Building

For participating FIs, the advisory services program will offer a broad range of activities on capacity building, starting with portfolio review and strategy setting with FI's senior management teams, and then moving to specific training to FI staff from various teams (product development, marketing, client relationship, and credit appraisal). On-the job coaching and support will be provided during the energy efficiency/cleaner production project evaluation process. The training package for bankers will include an introduction to EE technologies, economics and end-user savings benefits and will be layered in order to address several target groups, starting with management through credit risk analyst/managers, and ending with loan officers/ client relationship officers. Special features of EE transaction structuring, including ESCO lending and project finance techniques relevant for energy efficiency projects, will also be taught. These techniques will vary and must be applied to specific end-user sectors. Training will also focus on marketing energy efficiency finance services and one-on-one consultations with each financial institution to establish an energy efficiency finance unit within an appropriate department of the financial institution. Part of the effort to encourage FI's to internally structure an EE related lending unit can also be an incentive scheme for loan officers/internal staff. This would encourage faster uptake of the Program

though the proactive development of EE/RE deals by relationship officers and other related bank employees.

Each FI program must insure that, within the institution, EE finance knowledge is broadly understood. This knowledge must be developed among financial institution staff involved in finance, origination, credit and structuring decisions, and then promoted within the institution's branch network. Because energy efficiency finance can address a range of end-user sectors and project types, it is important to take a "financial product" approach to development of various financing structures. A financial institution's selection of the financial products to be offered will be based on their finance appetites and capabilities and market opportunities. The advisory services program will assist each financial institution to develop and adapt energy efficiency finance products to target sectors.

Despite the fact that advisory services will be provided directly to participating financial institutions, there is also expected to be a public good component of the capacity building exercise. Best practices from development of specialized lines of business will be summarized and will be presented to other market participants to reach wider potential of energy efficiency finance providers. A set of best practices guides in EE/CP/RE finance with case studies representing various sector clients would be developed and publicized to make sure that the knowledge is transferred broadly in the market.

IFC will also work to build capacity for local training institutions, such as the Bank Training Center (a business entity spun-off from IFC technical assistance program few years ago) so that when the IFC program phases out after 5 years, local capacity (training materials, trainer network) is strong enough to continue training services to other banks that want to enter EE/CP/RE finance market or continue to strengthen/ expand their EE/CP/RE finance business.

Market Awareness Raising

Targeted market awareness raising activities will be organized in order to build sufficient pipeline for potential investments as well as to develop sufficient levels of understanding of the energy efficiency/cleaner production and renewable energy market in Vietnam. These activities will include conferences, seminars and trainings for SMEs/commercial entities (both management and energy professionals), business associations' specialists, and industrial zones' management teams. The program will support direct marketing activities, work with industrial associations and other professional bodies. Joint promotional campaigns, technology fairs, information events will be organized in which the Program will bring both FI's representatives and technical service providers/ESCOs/Equipment suppliers together to provide both technology information and financing options to potential end users/borrowers. There is also a plan to coordinate with the national TV network to introduce a regular program or a kind of EE/CP/RE club to disseminate information on good energy management practices, and clean energy options to a wider public audience. This TV program will also be a channel for technical service providers, ESCOs and vendors to introduce their services. Best examples of EE/CP investments by individual companies will also be shared through this TV program or club.

As part of the efforts to build awareness and create competition among industries, the program will also consider supporting energy efficiency benchmarking surveys in energy intensive sectors. The purpose is to help enterprises recognize where they are in terms of energy efficiency compared to their peers and competitors. This will trigger their interest to understand causes of their inefficiencies, improvement opportunities and solutions. The sector benchmarking surveys and sector best practices guides will make a good set of materials to build market awareness.

End-user support/Technical service providers support

The advisory services program will include specific initiatives targeting SMEs as end users and SMEs as

service providers to the end-user groups. SMEs need financing and technical consultancy to make their investments happened. They also need training to set up effective energy management systems, and learn how to monitor their energy consumption and efficiency over the time. The advisory services will work with selected technical training firms to roll out various training products to SMEs, for instance EE/CP for technicians, EE/CP for executives, EE/CP for energy managers at factories, as well as technical seminars to introduce new technologies available in the market. Advice and support will be provided to these technical training firms so that they can standardize/professionalize their products and services and meet SMEs' specific demand for technical training.

The advisory services program will also work at the project level and will support development of specific projects. Performing an energy audit for a prospective energy efficiency customer is the beginning of the project sales cycle. By supporting energy audits, the Program will assist in building a pipeline of projects for financing. Participating financial institutions and energy efficiency businesses can then identify prospective customers.

Market Transformation

The combined IFC/CTF Program is expected to result in a transformed financial sector which views energy efficiency financing as a standard business practice, as well as transformed SME, commercial and municipal sectors, which view energy efficient technologies as standard ways of operating an efficient business and competing in the market. The Program is a long-term effort to increase awareness, support behavior change, build the EE/CP/RE financing market, support some early entrants by FIs into the EE/CP/RE financing business, and build the momentum for it to continue to grow. This will help to steer Vietnam's economic development into a low carbon path with more sustainable use and management of resources. Given the very early days of getting the local financial sector into EE/CP/RE business, CTF participation is very important. Without CTF it would be much harder to establish market acceptable conditions for such a Program.

FIT WITH INVESTMENT CRITERIA

i) Potential GHG Emissions Savings:

The Program is structured as an intermediary operation. As such, the precise composition of the FI's loan portfolio cannot be exactly predetermined. Therefore, it is necessary to provide a broad range estimate of the emissions reduction that is likely to result from the project.

The total financing volumes of the energy efficiency/small scale renewable energy projects directly facilitated by the Program are estimated at approximately US$ 128 million (including IFC and CTF investment funding). Usually, borrowers use loans to cover 70% of their total project investment costs, and the remaining would come from their own resources. If we include borrowers' self-financing part (approx. US$ 54.8 million), the total investments directly triggered by the Program could be up to US$ 182.8 million. The Program will support implementation of energy efficiency/cleaner production projects which would likely not otherwise be implemented due to institutional and financial barriers and the incremental risks perceived by financial institutions. On the technology side the projects implemented will use technically viable, proven technologies which represent low risk and allow large scale-up and replication potential once a track record is established for the underlying portfolio.

Given the average direct cost of GHG abatement from energy efficiency investments in Vietnam industries is expected to be $40/t of $CO_{2e,}$ (assuming 15 years of technology lifetime) the Program's direct emission savings are expected to

reach approximately 0.30 million t/ CO_{2e}/year by the end of the investment cycle (when all projects are fully implemented) in the average scenario. Total emissions for the lifetime of the Program (15 years life of the technology financed) are expected to be approx. 4.5 million t/ CO_{2e}.

In addition to the direct emissions savings, the replication impact to be derived from the advisory services, market development, and establishment of a track record is expected to help mobilize another 100 mil US dollars of investment from local FIs and/or other IFIs given IFC's experience in other markets. Assuming the same investment to emissions ratios used above, the Program's total direct and indirect emission avoided are expected to reach approximately 0.47 million t/ CO_{2e}/year by the end of the investment cycle (when all projects are fully implemented). Total emissions for the lifetime of the Program (15 years life of the technology financed) are expected to be approx. 7 million t/ $CO_{2e.}$

ii) Cost-Effectiveness:

The use of US$29.4 million from CTF (including both investment and advisory services grants) would result in an estimated direct savings of 0.47 million t/ CO2e/year, US$182.8 million of direct IFC/CTF/borrowers' investment in energy efficiency projects that otherwise wouldn't have happened, plus another approx. US$100 million of investments mobilized from local FIs through replication of the program. With the projected lifetime of the Program of 15 years, cost effectiveness of CTF investment would be from 4.2 US$ / t CO2e (if impact of mobilization counted) to 6.5 US$/ t/ CO_{2e} (if counted only impact of IFC/CTF financing). Given the long-term effect of market development work, and capacity building, we expect that the participating FIs, will continue their EE/CP lending business, and other banks will get into the market as well. So over time, the cost effectiveness of the CTF program will continue to increase.

iii) Demonstration Potential at Scale:

There is tremendous potential for demonstration at scale, especially within the SME sector. According to the Ministry of Planning and Investment (2008), 97.2% of enterprises in Vietnam are SMEs if we apply the criteria of 300 employees and less; or 87.1% of enterprises are SMEs if we apply the criteria of registered capital of 10 billion dong or less. Gross output produced by SMEs has maintained a constant trend at around 45%-50% share of total gross output of Vietnam's economy. The SME sector is also the key sector that creates jobs, currently employing 45% of the labor force (Depocen, 2009). Nearly 35% of SMEs are in manufacturing and construction, the rest is in service sector. Less than 20% of SMEs are involved in export activities. Nearly two-thirds of export-oriented SMEs are manufacturing food products, textiles and garments, wood products and furniture, rubber and plastics products. However, it is also noted that the share of export-oriented SMEs in these industries has been declining while the share of export-oriented SMEs manufacturing footwear, chemicals and chemical products, non-metallic mineral and metal products, and machinery and equipment has been increasing in terms of the number of enterprises, labor and revenue. The observable trend is that export-oriented SMEs are shifting from labor-intensive industries to capital-intensive industries which require higher energy needs. Going forward the SME sector will remain the backbone of Vietnam's economy, and the key economic growth driver (ATRP Network 2008) thus leading to more energy consumption.

According to the WB and MOIT, the industrial sector in Vietnam is responsible for 53% of final commercial energy consumption. The most energy-intensive industries are cement, steel, brick/ceramic, glass, pulp and paper, plastics, chemicals, food processing, and textile. Vietnam's industrial output value grew at 11%/year, much higher than average GDP growth. The WB recent study reveals that over the last 10 years, each of the above mentioned sectors has been growing faster than industrial output value as a whole—indicating a movement towards more energy-intensive basic commodity production. Currently technologies and equipment used by SMEs in industries are outdated and inefficient. Many companies used old and second-hand machineries when they started their businesses, therefore machineries in some sectors are now 30-35 years old. Technology upgrading is an inevitable path that local enterprises would have to go through, given that the energy prices continue to rise, and competition is fierce after WTO accession. **Companies in Vietnam typically use more energy to produce the same production output compared to their peers in Thailand and Malaysia (1.5 to 1.7 times higher). Cutting costs, including energy costs, and finding ways to improve efficiency and productivity are crucial to most of local companies. If the initial barriers to efficient technology adoption are addressed through the CTF Program, significant incentive exists for additional end users to follow suit at scale.**

The WB estimates that potential savings of 25-30% are likely in various industries if attention is paid to energy waste cutting. Improving the efficiency of industrial fuel use involves deployment of efficient boiler technology and its efficient matching with steam or hot water demands, tightening steam use systems, modern kiln development, schemes to use waste heat and gas, and industrial cogeneration, as well as specific process technology advancements and Energy Management System (EMS) standards. Improving the efficiency of electricity use involves technologies such as improved and often variable-speed motors and motor drive systems, efficient matching of equipment capacities, efficient internal electricity distribution, electric furnace improvements and management, power factor correction, utilization and careful capacity matching of cooling equipment, improved lighting technology, etc

Before the global financial crisis, approximately 50% of credit supply went to SMEs, and private commercial banks were very active in SME sector. The leading private joint-stock banks in Vietnam all built their business based on SME demand. When the global financial crisis hit, liquidity in the market was much constrained, and the government tightened credit supply. The SME sector was therefore largely affected. With the economy on recovery now, it is expected that credit supply to SMEs will increase again, and local financial institutions are more open to adopting and introducing new financing products (during the crisis, they all became conservative and didn't want to venture into new business lines). This is a good time for IFC/CTF Program to intervene and help the financial sector look into a new area, which potentially would allow them to offer more specialized products to their SME client base. **The Program will aim to establish a track record for sustainable energy financing, after which, other financial intermediaries are expected to enter the market without further incentives and increase the availability of finance as demand for such investments grow.** In addition, market knowledge sharing and capacity building activities will help create momentum for EE/CP/RE financing to continue beyond the Program lifetime.

iv) Development Impact:

The Program is expected to enable projects to happen that otherwise would not, and to generate a range of environmental and economic benefits related to the development of the sustainable energy service industry and stream of energy efficiency project investments. Specifically, the Program would: (i) build capacity in the local banking and leasing sectors to finance EE/CP projects; (ii) support the emergence of energy service companies by securing financing for them; (iii) develop energy efficiency & cleaner production investment projects across sectors; (iv) improve the competitiveness of the Vietnamese economy by increasing the efficiency and competitiveness of their operations and create jobs; and (v) improve the local as well as the global environment through reduced emissions of greenhouse gases and other conventional pollutants.

Replication Potential: The Program is expected to have a large spillover effect to the companies through the on-lending of financial institutions. The Program can be replicated with other local financial institutions in Vietnam and in East Asia.

Access to Finance: Increasing the importance of sustainable energy and efforts to decrease pollution in Vietnam will require development of new innovative financial mechanisms to support access to finance of target sectors, which have great demand and potentials for applying energy efficiency measures. The Program's support in the development of financial products for energy efficient and renewable energy equipment will help the end users to find proper financial instruments and to raise awareness about the availability of finance among industries and other end users. Long term funding that will be provided to financial institutions through the Program will enable them to on lend to SMEs with longer tenors, so that the SMEs can undertake the necessary sustainable energy investments, which require longer term financing.

Improved Competitiveness of the Sub-borrowers: The implementation of energy efficiency projects by the borrowers/end-users will increase long-term sustainability of their operations, improve their cost efficiency and competitiveness, and bring them financial benefits and create jobs over the long run.

Job creation: EE & CP investments include modernization and optimization of production systems, thus in some cases investments can also lead to some reduction in manual jobs. Nevertheless, the overall trend in emerging markets is that when companies, especially SMEs, operate efficiently, they will continue to expand over the time. The overall rate of

job creation is estimated at 4-5% over the program life time of seven years (3000- 4000 jobs). The question of job creation attributable to EE-CP investments alone or to overall market growth remains a difficult one. The program team will try to build an M&E system in a way to keep track of employment growth among loan borrowers. It would not be possible to differentiate between high/low value jobs created.

Gender equality (% of new jobs occupied by women): In Vietnam, some sectors are highly dominated by women, for instance, textiles, footwear, food processing, agri-processing, etc. Depending on the sectors each FI targets with their EE-CP lending programs, the gender equality ratio can range from 30% to 70%. On average, we estimate that 40-50% of new jobs would be occupied by women.

Number of people/businesses benefiting from EE projects: EE & CP projects don't necessarily increase access to energy. However, EE-CP investments result in reduction of energy intensity, i.e. energy consumption per output unit; and thus help companies to reduce their energy costs, and become competitive. Increased energy efficiency by companies helps reduce the pressure on the national grid generation capacity. This is important in Vietnam's context because with the overall growing demand for electricity, currently the utilities cannot guarantee adequate supply. In March 2010, Vietnam announced that the system will run short of 10-15 million kwh per day in the dry season, or total 600 million kwh this year. Scheduled blackouts are being implemented throughout the country, and result in electricity supply cut in both urban and rural areas. Many enterprises have to use DO generators as back-ups. Thus, we can also say that EE programs will help reduce pressure on grids, and over the long run, would reduce the problem of wide-spread blackouts.

Market development of new local enterprises: While IFC is comfortable estimating and tracking indicators such as job creation, it is uncomfortable estimating and tracking the number of new enterprises created through the program for the following reasons. New jobs may be created by both existing companies and by establishing new companies; a few large companies may emerge or several smaller ones. Given that we are dealing with the private sector, it is near to impossible to anticipate what the market profile will be several years from now. For this reason, we prefer to focus on job creation versus company creation for the Vietnam program.

Poverty Reduction: The program may have indirect poverty impacts as follows:

a) the Vietnam EE/FI program aims to both promote the use of energy efficient technologies with end users and make the equipment more accessible by increasing access to finance for such equipment. Once a significant number of companies begin to lower their costs in a given sector through the application of more efficient technologies, other companies will be pressured to follow-suit to stay competitive. This will increase demand for the technologies and eventually make such technologies the "industry standard".

b) Assuming that financing new, efficient technologies will become a mainstreamed business line of financial institutions, access to finance issues will be adequately addressed to support the evolving market. When using more efficient technologies becomes market practices, industries should become more efficient and competitive in Vietnam and in the region.

c) This in turn may lead to production expansion, and thus an increase in jobs (including potentially more technical jobs) as well as an increase in waged salaries to their employees. It could also potentially lead to a shift from agriculture-based activities to manufacturing jobs, all of which would have trickle-down effects on the livelihood of people and their families.

d) It should be noted that these impacts would be indirect and difficult to measure, except as part of a broader assessment of market evolution in Vietnam done several years after the implementation of the program.

v) Implementation Potential:

The Vietnamese government is promoting the efficient use of energy in all sectors, including large industries and SMEs under the current National Target Program for Energy Conservation and the forthcoming regulations (the EC Law). The

government uses its own resources and bilateral donor funding to invest in public awareness raising, and creates regional energy conservation centers, which serve as technical hubs in proving training energy audits to enterprises. The government is also committed to follow through with their energy sector reforms, removing subsidies for fuel and electricity. The electricity tariffs will be set at market rates by 2012. This will create cost pressure on many enterprises, and accelerate the technology upgrading process at company level. In addition, the government is also strengthening enforcement on industrial pollution control, making enterprises more accountable for their wastes, and environmental impact. This IFC/CTF program comes at an opportune timing.

Several donors are providing support to build technical capacity for auditors and consultants. UNIDO and DANIDA are among the active donors who set up projects to train technical experts on energy efficiency, system optimization and cleaner production, and ISO management systems. The IFC/CTF advisory component will compliment these efforts to achieve market transformation at scale.

As explained above, financial institutions are not yet involved in energy efficiency/cleaner production programs. The IFC/CTF Program will be the first comprehensive program to address financial sector barriers, and bring local FIs into the sustainable energy market. Discussions with potential partners in Vietnam show that local FIs are interested in the new business line, although they have some reservation for the start-up. With both investment and advisory services, the IFC/CTF Program will help build a business model for these banks to enter the market and reach the momentum needed to carry on the SE financing business on their own after the Program phases out.

IFC will coordinate closely with IBRD, other bilateral donors, and the Government during the implementation of this proposed Program.

vi) Additional Costs & Risk Premium:

The interest rate, tenor and amount of the CTF senior loan to be provided under the Program will reflect the need for subsidies but also market conditions. CTF funding will seek to overcome barriers to market transformation for the Program with the minimum level of concessionality required.

vii) Financial Sustainability

The Program reflects the current situation in the Vietnam market, where there is no energy efficiency and cleaner production lending operations by commercial banks. There is understandable reservation from the financial institutions as they are concerned about the start-up costs, and risks of entering a completely new business segments such as energy efficiency/cleaner production project financing. By offering funding, with concessional terms, longer maturities, plus capacity building support, the Program will establish a track-record for the viability of commercial financing for sustainable energy projects and will play a significant role in accelerating market development. Once the initial partner FIs overcome start-up barriers, develop their internal capacity, and see that sustainable energy finance can be a significant volume of business with scale, and also profitable without concessional interest rates, they would continue the line of business without the need for further subsidies.

The first mover FIs are expected to be role models for other market participants, and set examples for other to follow. IFC's experience in Eastern Europe and China shows that once it is proven that the energy efficiency/cleaner production projects can generate additional income for FIs, other banks will follow suit using their own funds to develop the new products. It should be noted as well that the barriers for new entrants will be significantly reduced as much of the learning from the initial banks will be captured and shared with new market entrants through the Program's knowledge management component (especially the technical guides for bankers on popular EE/CP technologies in various sectors, and the public training program for banks that want to develop this new business).

viii) Effective Utilization of Concessional Finance

Lack of funding resources, their costs and maturity, coupled with concerns over risks and start-up costs to enter a

completely new line of business are currently key barriers that block FIs from developing dedicated financial products for energy efficiency, cleaner production and renewables. Over the past nearly two years, IFC has been trying to convince local FIs to enter into this new market, but it has become clear that local FIs are not willing to invest in building their teams with specialized skills, developing products, allocating financial resources, etc. if there are no incentives for them. We believe that the proposed projects would not be undertaken by local FIs if the concessional finance portion (interest rate subsidy or convertible loan/ grants) is missing. While discussing energy efficiency/cleaner production financing with a number of FIs in Vietnam, they all have reservation over the fact that they need to develop special skills in-house, launch new product and marketing programs, modify credit appraisal procedures, train staff, hire technical consultants, etc. while they cannot price EE/CP loans higher to compensate for such costs and the unknown risk. Especially, with the rising cost of funds due to competition for short-term deposits, and the lending rate cap by the government, FIs see their margin is actually being squeezed further. Therefore, the concessional element and convertible loan/grant of the CTF loan is an important tool for the financial institutions to be incentivized to take part in sustainable energy financing with the minimum level of concessionality required. To maximize the effectiveness of the concessional portion of the loans, IFC will encourage FIs to create internal incentives for officers to catalyze loan development at a faster rate.

Financial institutions that receive funds from the Program must fully comply with IFC standard financial covenants and reporting requirements, in addition to other covenants and requirements that would be determined during the due diligence performed at these institutions.

This program proposal represents the first comprehensive initiative on a programmatic basis to use concessional financing as a means to help develop Vietnam's SE private financing by supporting local commercial financial institutions. As described in pages 1-2, IBRD and ADB are planning to use CTF concessional financing in Vietnam, and the three MDB's program will work to complement each programs.

ix) Mitigation of Market Distortions

The proposed Program will not distort the market, since it will not be displacing any private sector investment. Currently there is little to no private sector investment in energy efficiency financing; as such, the Program will leverage and enable financing to enter the market that doesn't currently exist. The financing provided by the commercial banks and/or leasing companies will be used by SMEs. The SME segment in Vietnam is not yet fully aware or being part of any carbon financing schemes. In selecting the participating FIs, the Program will give priorities for those that target SME segments as long-term business strategies.

x) Risks

Macroeconomic Risk: The profitability of financial institutions is sensitive to macroeconomic developments. Budget deficits have increased to 11-12%. Export growth recovery will be much dependent on market demands in the US, EU, and Japan. The government concern over inflation risks results in credit tightening policies, and the cap on credit growth as well as lending rates. This prevents private commercial banks from expanding their portfolios. There is also speculation about exchange rate and foreign currency reserves, and that Vietnam might depreciate further the dong. This makes depositors stick to short-terms deposits only.

Mitigant: This risk is mitigated to a certain extent as the government requires FIs to increase their capital, and be conservative with provisioning. The government has been quick in stabilizing exchange rates and recently confirmed that national reserves are at acceptable levels to cope with fluctuations in the market. Overall, the economy is on recovery, exports are gradually recovering, and domestic consumption is expanding. The business sector is requesting the government to reconsider the credit cap policy given that inflation is back to lower levels now and manageable.

Market Awareness: The government-run awareness raising activities remain limited in terms of outreach and effectiveness. Companies, especially SMEs have limited understanding of EE/CP investment opportunities, and many think environmental issues are not their priority concern. They also don't have much information on technology options available in the market.

Mitigant: Companies might not put environmental issues as their priority agenda. Nevertheless with energy/electricity prices going up, they are forced to think of cost savings. The Program will provide basic market awareness activities, and will work with FIs and end-users to help them understand the cost savings opportunities as results of EE/CP investments. Technical support for energy audits, feasibility studies, technology verification, and marketing activities to be undertaken together with FIs will aim to motivate companies.

FI reluctance to enter SEF Market: Sustainable energy is a new market area in Vietnam, and regulations concerning EE and RE are still under refinement. The local private FIs are reluctant to take a leadership role in this new business segment.

Mitigant: The concessional funding from CTF, plus convertible loan/grant, and advisory services will create incentives to motivate the private FIs to enter into this untested market. The advisory services will not only help these FIs to get into the market, but also build momentum for them to continue growing their new portfolio as part of their mainstream business.