

9 May 2012

To: All Registered Environmental Technology Services Providers

Cleaner Production Partnership Programme
Promulgation of information on Environmental Technology Service Providers in
the Case Reports of Completed Demonstration Projects

The following is the new arrangements to promulgate the information of registered Environmental Technology Service Providers (ETs) in the case reports of demonstration projects completed under the Cleaner Production Partnership Programme (the Programme) which was announced on 20 December 2011:

- (i) those ETs who implemented the demonstration projects will be reported in the case reports; and
- (ii) all registered ETs will be to apply for inclusion of their names and contacts in the case reports if they have the capabilities to supply the demonstrated technologies and/or provide available alternative technologies/solutions which are similar to the technologies demonstrated under the projects.

2. By way of background, the Secretariat of the Programme publishes case reports on completed demonstration projects funded by the Programme in order to widely promote the specific cleaner production (CP) technologies/practices adopted in the demonstration projects. These case reports will be uploaded onto the Programme website for sharing the project findings and experience amongst interested parties. To facilitate factories interested in the technologies demonstrated under the Programme in approaching relevant ETs conveniently for further information of the technologies, the Project Management Committee (PMC) of the Programme endorsed the arrangements for promulgation of the information of relevant ETs in the case reports of demonstration projects as described in the first paragraph of this letter above.

3. To implement the arrangements, the Secretariat will –

- (a) prior to publishing the case report of a completed demonstration project, invite all registered ETs to advise on their interest and their capabilities to supply the demonstrated technologies and/or provide available alternative technologies/solutions which are similar to the technologies demonstrated. The interested ETs will need to submit relevant information, project reference, etc as listed in Appendix A, for review by the Secretariat;
- (b) approach the project clients as referred by the ETs in their submissions to confirm the implementation details of the projects and the performance of the concerned CP technologies. The Secretariat will only review applications with requested information submitted in full; and
- (c) notify the concerned ETs on whether their submissions are accepted so that their information will be included in the case report, along with those ET(s) who implemented the project.

Arrangement for Publishing Case Reports

4. The Secretariat will publish another 20 case reports on the Programme website in May 2012 (the details of the demonstrated technologies in the case reports are listed in Appendix A). The Secretariat now invites interested ETs who are capable of supplying the demonstrated technologies and/or providing available alternative technologies/solutions which are similar to the technologies demonstrated to apply for inclusion of their information in these case reports. Interested ETs should provide the relevant information as listed in Appendix B on or before **23 May 2012**.

5. Should you need further information/clarification, please contact the Secretariat at +852-27885588.

Yours Sincerely



Raymond C L FONG
Programme Manager

Encl.

致：已登記的環境技術服務供應商

清潔生產伙伴計劃
於已完成示範項目技術報告
公布環境技術服務供應商資料之安排

秘書處已於 2011 年 12 月 20 日公布關於「清潔生產伙伴計劃」（計劃）資助中的示範項目技術報告，公布已登記環境技術服務供應商（服務供應商）的資料，有關安排如下：

- (i) 執行示範項目的服務供應商資料會於技術報告中發布；及
- (ii) 若其他已登記之服務供應商，可提供與示範技術相同，及／或提供相類同之技術／方案，可申請在技術報告內納入公司名稱及聯絡方式。

2. 計劃秘書處為計劃資助下完成的示範項目編製技術報告，以推廣示範項目所採用的清潔生產技術／方案。這些報告將上載於計劃網站，與各方分享項目成果及經驗。為方便對示範技術有興趣的廠商，與相關的服務供應商聯繫，計劃項目管理委員會通過，於技術報告內公布服務供應商相關資料。

3. 為執行有關安排，秘書處會：

(一) 在編製已完成示範項目的技術報告前，邀請所有已登記的服務供應商，如有提供與示範技術相同，及／或相類同的技術／方案，可申請把有關資料納入報告內。有意申請之服務供應商需提交相關資料、工程案例等（詳情列於附件一）予秘書處；

(二) 聯絡服務供應商所提供的有關客戶，以了解工程的執行情況及清潔生產技術成效。秘書處只會處理資料齊全的申請；

(三) 通知服務供應商，會否接納申請，把資料納入技術報告內。

發布技術報告安排

4. 秘書處將於 2012 年 5 月在本計劃網頁上，發布另外 20 個技術報告（有關技術報告中的示範技術內容詳見附件一）。秘書處現接受申請，服務供應商若能提供與示範技術相同，及／或相類同的技術／方案，可申請要求把有關資料納入報告內。有興趣申請的服務供應商可於 2012 年 5 月 23 日或之前，提交列於附件二中的資料。

5. 若有任何問題，可致電+852-2788 5588，與秘書處聯絡。

項目經理

方湛樑

2012 年 5 月 9 日

附件

附件一
Appendix A

將發布的示範項目技術報告所涉及的示範技術
Demonstrated Technologies in Case Reports to be Published

參考編號 Reference No.	示範項目技術 Demonstrated Technologies	內容 Description
CP-D021 (08D0058)	鏈條鍋爐複合燃燒技術 Use of dual burning technology with pulverized coal firing in chain-grate boiler	<p>改裝鏈條鍋爐採用複合燃燒技術，以提升燃燒效率。爐排的給煤速度及煤層厚度均可減少，有助以無煙煤取代部分煙煤，從而進一步提升燃燒效率，並減少空氣污染物的排放。</p> <p>The existing coal-fired chain-grate boiler will be renovated with pulverized coal firing technology of higher combustion efficiency. The feeding rate of solid coal and the coal bed height can be reduced, favouring the switch from bituminous (煙煤) to anthracite (無煙煤) to further improve combustion efficiency of the boiler. Air pollutant emissions from the boilers could be reduced.</p>
CP-D022 (08D0063)	以紅外線加熱技術減少注塑機炮筒的電耗 Using energy efficient infrared heating coil for plastic injection machine to save energy	<p>採用高效節能塑料加工機械加熱圈改造注塑機電熱系統，該加熱圈採用納米合金材料配合特定的紅外管，較傳統電加熱圈更省電及能於極短時間內達到所需的操作狀況。</p> <p>The infrared heaters are used to melt plastic material for plastic injection machines to reduce energy consumption. Infrared heater is preferred to electric heater because it reduces energy cost and achieves desired production conditions within seconds.</p>
CP-D023 (08D0070)	煤粉鍋爐燃燒器的節能改造技術 Application of high efficiency pulverized coal burner with stepwise combustion technology for cogeneration boiler	<p>以兩台粉煤灰鍋爐燃燒器取代現有吹灰器。燃燒器採用改良的噴嘴裝置以噴射不同濃度的煤/空氣流到燃燒室內，達致分段式燃燒以增強燃燒效率。</p> <p>Two pulverized coal burners will be replaced by high efficiency pulverized coal burners with stepwise combustion technology. The burner employs an improved end-housing for nozzle assemblies to inject multiple discrete coal/air streams with different concentration to the burning chamber for stepwise combustion in order to facilitate efficient combustion.</p>

參考編號 Reference No.	示範項目技術 Demonstrated Technologies	內容 Description
CP-D024 (08D0071)	回收清洗阻焊絲網防白水的減排技術 Solvent recovery system to recover contaminated solvents in cleaning silkscreen for re-use in solder mask screen-printing process	阻焊絲網清洗用防白水回收系統包括清洗平台及有機溶劑回收機。清洗平台的斜內槽結構可收集防白水，再以密封的有機溶劑回收機以蒸餾原理回收。透過減少溶劑的用量及處理方法，減低揮發性有機化合物的排放。 An closed and sealed distillation based solvent recovery system will be installed to recover the solvent collected from the tilted-cleaning tank for re-use in solder mask screen-printing process. The amount of VOC emission can be reduced by minimizing the amount of solvent consumed.
CP-D025 (08D0082)	注塑機安裝變頻器的節電技術 Installation of variable frequency drive (VFD) controller for plastic injection moulding machine to save energy	為 2 台大型注塑機安裝變頻驅動器 (2 x 75kW)，因應不同負荷來調整液壓泵電源的輸入頻率，改變其運作速度，達致節電效果。 The applicant will retrofit two high-tonnage plastic injection moulding machines with VFD controllers (2 x 75kW), which will adjust the input frequency of power supply to the hydraulic pump in order to vary its speed of operation to match load conditions.
CP-D026 (09D0088)	有機熱載體鍋爐煙氣餘熱回收節能技術 Heat recovery of exhaust gas from oil heater at a textiles manufacturing plant	熱油爐的高溫煙氣通過熱管式熱交換器加熱清水產生蒸汽供生產使用。熱管具有高傳熱性能，通過密閉真空管殼內工作介質的相變來傳遞能量。 A unit of heat-pipe waste heat boiler is installed to recover waste heat from the exhaust gas of oil heaters and produce steam for production use in the factory. A heat pipe efficiently transports large quantities of heat through repeated evaporation/ condensation cycle of the media in the heat pipe.
CP-D027 (09D0091)	增加柴油燃燒率的燃料節省裝置技術 Diesel fuel conditioning system to improve combustion efficiency of the diesel in diesel generator to save energy	安裝柴油完全燃燒節油器以磁力將柴油中的大顆粒的不燃物粉碎，使其完全燃燒並消除黑煙 (NOx, SOx)。 A diesel fuel conditioning system (6000 l/day) consisting of an in-line magnetic treatment device and a re-circulating diesel pump will be installed to condition the diesel fuel in diesel tank in order to improve the combustion efficiency of the diesel fuel mainly in the diesel boiler. The magnetic device consists of permanent magnets which create a magnetic field to facilitate the better atomization of diesel fuel for improving combustion efficiency and reducing particulate emissions at the diesel boiler.

參考編號 Reference No.	示範項目技術 Demonstrated Technologies	內容 Description
CP-D028 (09D0093)	注塑機熱源回收技術 Heat recovery of plastic injection machine to produce hot air for hopper dryers to save energy	於 34 台注塑機安裝餘熱回收設備，將注塑機炮筒的熱量回收供烘料使用，節省烘料筒的耗電而不會對正常運作產生任何影響。 34 units of heat recovery systems are installed to recover waste heat from the barrel and produce hot air for the hopper dryers in order to demonstrate applicability of heat recovery system at different ratings (25kg hopper x 2, 50kg hopper x 18, 100kg hopper x 14)
CP-D029 (09D0095)	以臭氧系統控制中央空調水塔結垢問題的節能技術 Cooling tower ozone water treatment system with on-site ozone generator to enhance heat transfer efficiency of cooling tower of air-conditioning system	於中央空調系統的冷卻水塔安裝臭氧處理系統，除垢滅菌從而增加熱傳送效率，達致節能效果。 Ozone water treatment system with on-site ozone generators will be installed on the cooling towers of centralized air-conditioning system to enhance heat transfer efficiency of cooling tower of air-conditioning system.
CP-D030 (09D0109)	燃油鍋爐燃燒管理系統的節能技術 Installation of Combustion Management System Retrofitting a fuel burner with combustion management system to ensure maximum efficiency in the operation of boiler	安裝設有微調節功能的燃燒管理系統，以微處理器準確地控制燃燒過程，從而把鍋爐的燃燒質素調整至最佳狀態。透過使用可編程的微調節系統及伺服電機控制燃油閘/氣閘，可於整個負荷範圍內調整燃燒質素至最佳狀態，令燃油更有效地燃燒，從而達到降低成本、節省能源及減低空氣污染物排放的目的。 A combustion management system with Micro Modulation (MM) system will be installed to control the combustion process with accurate microprocessor technology and optimize combustion quality of the oiler/burner. Via an easily programmable Micro Modulation (MM) system and servo motors for positioning air damper/fuel valve, it is possible to optimize combustion quality throughout the load requirement range of the boiler/ burner. Cost and energy savings are achieved by burning fuel more efficiently which also equates to significant emissions reductions.
CP-D031 (09D0110)	平張柯式印刷中央供墨系統的減排技術 Automatic central ink supply system for sheet-fed offset printing to enhance productivity and save ink, thereby reducing VOC emissions	廠商已採用環保大豆油墨來取代油性墨水。此項目作進一步改善，安裝平張柯式印刷中央供墨系統把供墨自動化和中央化來減低揮發性有機化合物的排放（有機化合物佔大豆油墨 0.8%）。短時間供應油墨能節省時間及提升生產效率，而因油墨可完全從油墨罐中抽取，更能減低油墨的消耗和揮發性有機化合物的排放。 The factory has already switched from oil-based ink to environment-friendly soybean ink. In this project, a central ink supply system for sheet-fed offset printing will be

參考編號 Reference No.	示範項目技術 Demonstrated Technologies	內容 Description
		installed for automation and centralization of the ink supply in the applicant's factory to further reduce VOC emission (i.e. 0.8% of VOC content of soybean ink). Filling all ink fountains simultaneously shortens make ready times and enhances productivity. The fact that cartridges can be emptied completely reduces waste, cuts down on costs/ink consumption and minimize the amount of VOC emission.
CP-D032 (09D0114)	鏈條鍋爐撥火助燃系統的節能技術 Use of automatic stoking device for combustion efficiency enhancement in a coal-fired chain-grate boiler to save coal consumption	於現有鏈條鍋爐安裝撥火助燃控制系統，以提升燃燒效率及節約燃煤，從而減少鍋爐空氣污染物排放。 The existing coal-fired chain-grate boiler will be renovated with automatic stoking device to improve combustion efficiency of coal, resulting in lower coal consumption rate. Air pollutant emissions from the boilers could also be reduced.
CP-D033 (09D0119)	鍋爐分層燃燒及煙氣餘熱回收的節能技術 Renovating existing coal-fired chain-grate boiler with multilayer combustion technology to sort coal properly in layers for combustion efficiency enhancement to reduce air pollutants emission and save coal consumption	對廠內的鏈條鍋爐加裝分層燃燒技術以提高燃燒效率，從而減低燃煤消耗及空氣污染物排放。 The existing coal-fired chain-grate boiler will be renovated with multilayer combustion technology to improve combustion efficiency of coal, resulting in lower coal consumption rate. Air pollutant emissions from the boilers could also be reduced
CP-D034 (09D0124)	使用無極燈取代傳統汞燈的照明節能方案 Electroless induction lamps for replacing high pressure sodium lamps for a metal products factory	廠商安裝 400 組 165W 節能無極燈來取代 400W 傳統汞燈，並能提供同等光照度。由於無極燈表面溫度及熱流失較低，因此能安裝於較低的水平高度以增加工作範圍的亮度，從而進一步節省能源。 400 sets of 450W high pressure sodium lamps will be replaced by 165W induction lamps with luminaires, providing comparable level of illumination. Due to much lower temperature and heat dissipation from induction lamps compared with the existing high pressure sodium lamps, it allows the new system to lower the height of the retrofits to increase illuminance on the workplace. These directly result in substantial energy saving.

參考編號 Reference No.	示範項目技術 Demonstrated Technologies	內容 Description
CP-D035 (09D0127)	<p>環保型塗料織帶染色機的節能減排方案</p> <p>Using energy efficient natural gas-heated continuous ribbons/webbings dyeing machine with the use of alternative water-based pigments to save energy and reduce waste chemical from traditional disperse dye.</p>	<p>效率較高的專利設計天然氣連續加熱織帶染色機取代傳統的電加熱染色機，可減少二氧化碳和空氣污染物的排放。此外，工廠也將由分散染料（溶劑成份為苯甲酸、氯苯）轉用為較環保而又可以被色帶/織帶完全吸收的水性塗料，從而避免廢棄已使用的分散染料（註：目前由認可的回收商回收）。</p> <p>Traditional electric-heated dyeing machine will be replaced by a unit of energy efficient natural gas direct-heated continuous ribbons dyeing machine heated with clean alternative fuel - natural gas to reduce carbon dioxide and air pollutants emission to the environment. Furthermore, the factory will also switch from disperse dyes (with Benzoic acid, chlorobenzene as solvent) to environment-friendly water-based pigments that totally be absorbed by the ribbon/webbing. With the use of water-based pigments, spent disperse dye solution (which is currently collected by authorized recycler) can be eliminated.</p>
CP-D036 (10D0136)	<p>空氣壓縮機廢熱回收以供應生活熱水的節能技術</p> <p>Waste heat recovery of rejected heat from compressed air systems to produce hot water for dormitory use</p>	<p>改裝兩台 150 匹空壓機加設餘熱回收系統，吸收空壓機高溫冷卻油餘熱產生熱水供宿舍使用。現時，宿舍熱水是以柴油熱水器加熱提供。</p> <p>Two heat recovery units will be retrofitted to the two existing 150 hp air compressor in the same compressed air station to recover rejected heat from compressed air system and produce hot water for dormitory use. Currently, the hot water for dormitory use is provided by diesel boiler.</p>
CP-D037 (10D0137)	<p>油漆噴塗工藝減排揮發性有機物(VOC)的技術</p> <p>Installation of high volume low pressure (HVLP) spray guns to replace the conventional spray guns to save ink/solvent and reduce VOC emissions</p>	<p>在同一生產線中以 24 台高流低壓噴槍替換傳統噴槍，以減少油漆/溶劑使用量及揮發性有機化合物排放。低壓高霧化噴塗技術以低霧化氣壓和高空氣流量霧化塗料，改善了塗料從被塗物表面反彈出來的情況，從而提升上漆率及減少物料使用量，並減少相應的揮發性有機化合物排放。</p> <p>Twenty-four sets of conventional spray guns in the same production line will be replaced by high volume low pressure (HVLP) spray guns to save paint/solvent and reduce VOC emissions. With HVLP spray guns, a higher volume of air is used to aerosolize and propel the paint at lower air pressure, resulting in a higher proportion of paint reaching the target surface with reduced overspray, blowback, materials consumption, and VOC emission.</p>

參考編號 Reference No.	示範項目技術 Demonstrated Technologies	內容 Description
CP-D038 (10D0144)	<p>高效型微弧氧化系統的節能減排技術</p> <p>Installation of micro-arc oxidation system for metal surface treatment to reduce waste chemical in production.</p>	<p>安裝微弧氧化(金屬表面處理)系統,以減少化學廢物的產生。與傳統的陽極氧化系統比較,由於免除多個預先處理或後期處理的過程和使用更稀釋的環保電解質,從而減少污水和化學需氧量(COD)的排放。此項目將安裝第二代微弧氧化系統(MAO),提高了性能(如兩倍效率、更省電、質量更高),並免除表面除油過程,從而進一步減少污水和除油劑/溶劑的使用量。</p> <p>A unit of micro-arc oxidation system for metal surface treatment will be installed to reduce waste chemical usage in production. Compared to traditional anodizing coating, this MAO will produce less effluent & COD due to the elimination of pretreatment/post treatment processes and the use of dilute environmental friendly electrolytes. This project will install the 2nd generation of MAO system which has enhanced performance (e.g. double productivity, save electricity, higher quality compared with the 1st generation product) and further eliminates the surface degreasing process which in turn reduces the effluent and consumption of degreasing solvents and agents.</p>
CP-D039 (10D0148)	<p>提升磷化污水處理及循環污水回用的技術</p> <p>Installation of wastewater treatment system with biological phosphorus removal technology to remove phosphorus from phosphating industrial effluent and recycle the after-treatment water for production use.</p>	<p>新增污水系統對污水進一步作生化處理,污水可達到生產前處理工藝循環再用的標準要求。前處理工序產生的磷化廢水經污水管收集進入集水池,再經過調節池、反應池、斜管等,再通過水解降解後進入好氧池。污水經過水解—好氧過程,能去除大部分有機物,並可獲得較好的除磷效果。最後,經生化處理池處理後的水就可以被抽到前處理車間循環使用,減少使用自來水的消耗量。</p> <p>The existing effluent treatment system will be retrofitted with biological phosphorus removal technology to further remove phosphorus from the phosphating effluent for meeting the recovery requirement of the after-treatment water for production use. The whole wastewater treatment enhancement includes equalization, chemical precipitation, sedimentation, hydrolysis acidification and biological aeration. Most of the organics and phosphorus can be removed after the hydrolysis and aeration process bio-contact. The treated effluent can be returned to the production process for reuse, thus, the wastewater reclamation can reduce the tap water consumption.</p>

參考編號 Reference No.	示範項目技術 Demonstrated Technologies	內容 Description
CP-D040 (09D0108)	以震動薄膜過濾系統回收除油廢液的節能減排技術 On-site recycling of degreasing water with vibrating membrane filtration system for a metal oxidizing and electroplating factory to save energy of waste degreasing water treatment	以一台可移種式的震種薄膜過濾系統，處理除油廢水及循環再用，取締現時採用的蒸發法以節約能源。該系統利用超頻震動加強剪切力以防止膜堵塞，其可移動設計便於輪流處理四個除油廢水缸，除油後的濾液可循環於除油缸使用。 A portable UF Vibrating membrane Filtration System will be used to treat and recycle degreasing water in order to eliminate the need of evaporation of waste degreasing water to save energy. By applying ultra-high vibratory frequency on membrane to produce extremely high shear on the surface of the membrane, Vibrating Membrane Filtration System effectively prevent colloidal fouling and clogging as in traditional membranes. The system is movable and can treat the four degreasing water tanks in 4 production lines one by one. The degreasing water will be filtered continuously and the permeate will be on- site recycled back to the degreasing tanks.

附件二
Appendix B

請提供與示範技術相同或相類同技術的項目資料
**Please Provide Project Information Employing the Demonstrated Technology
and/or Alternative Technology/solution Similar to the Technology Demonstrated**

1. 完成案例 Completed Project
 - ✓ 客戶資料: 廠名、廠址、聯絡人、職位及聯絡電話 Client's information: factory name, address, contact person, post, and phone number
 - ✓ 項目執行時間 Project implementation period
 - ✓ 項目驗收副本 Project acceptance document (copy)
2. 項目資料 Project Information
 - ✓ 項目名稱 Project title
 - ✓ 項目報告書 Project report
 - ✓ 操作維修手冊 Operations & Maintenance manual of the technology demonstrated
 - ✓ 相關技術設備的現場照片 Photos showing the relevant technology and the equipment
 - ✓ 技術說明及設備規格 Technology description and equipment specification
3. 項目成效測試結果 Project performance verification result

註：

Note:

1. 清潔生產伙伴計劃秘書處會聯絡相關廠商核實項目的執行狀況及成效
2. 若在限期前環境技術服務供應商仍未能提供以上全部資料，秘書處將不會處理要求將環境技術服務供應商的資料包涵在示範專案報告書的相關申請。
 1. *The Secretariat of the Programme will call the factory to confirm the implementation of the project and the performance of the concerned technology*
 2. *If the above information cannot be supplied to the Secretariat in full before the deadline, the Secretariat will not process the request to include the contacts of the Environmental Technology Service Providers in the case reports of the demonstration projects.*