

## ANNEX 4 - Validation Protocol

**Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website) All CDM project activities**

REQUIREMENT	MoV	Ref	Comment	Draft finding	Concl
1.1 The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	DR	PDD	No annex I is identified yet in this project.	Ok	Ok
1.2 The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	DR	PDD	No Letter of approval by host country (Brazil) has been submitted to the validator. The letter will be issued after the report is analysed and approved by Brazilian DNA.	The report will be sent to the DNA for analysis.	OK, letter received
1.3 All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	DR	PDD UNF CCC site	Yes, Brazil. Ratification date: 23 Aug 02	Ok	Ok
1.4 The project results in reductions of GHG emissions or increases in sequestration when compared to the baseline; and the project can be reasonably shown to be different from the baseline scenario	DR	PDD	Yes. Project improves the supply of electricity with clean, renewable hydroelectric power. It reduces emissions of greenhouse gas (GHG) by avoiding electricity generation by fossil fuel sources (and CO <sub>2</sub> emissions), which would be emitted in the absence of the project. The PDD discuss the barriers that would prevent the	Ok	Ok

REQUIREMENT	MoV	Ref	Comment	Draft finding	Concl
			project implementation. The most likely alternative presented would have been not to build Braço Norte III.		
1.5 Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days (45 days for AR projects), and the project design document and comments have been made publicly available	DR	UNFCCC site	Global stakeholder: 21 Dec 05 – 19 Jan 06 <a href="http://cdm.unfccc.int/Projects/Validation/view.html?ProjectId=CVHKL6AY9RIIOKK88YI7Y9MLFEXT0&amp;OE=SGS-UKL">http://cdm.unfccc.int/Projects/Validation/view.html?ProjectId=CVHKL6AY9RIIOKK88YI7Y9MLFEXT0&amp;OE=SGS-UKL</a> No comments were received.	Ok	Ok
1.6 The project has correctly completed a Project Design Document, using the current version and exactly following the guidance	DR	PDD UNFCCC site	Yes, CDM SSC-PDD (version 2, 8 July 2005).	Ok	Observation (1): it is not informed the version of the PDD in section A, item A.1.
1.7 The project shall not make use of Official Development Assistance (ODA), nor result in the diversion of such ODA	DR site visit	PDD	To be confirmed by local assessor. As discussed during interviews with project managers (carried out by the local assessor), the project does not make use of ODA.	Verify	Ok
1.8 For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?			N/A		
1.9 Does the project meet the additional requirements detailed in: Table 9 for SSC projects Table 10 for AR projects	DR	PDD	Yes (see table 9)	Ok	Ok

REQUIREMENT	MoV	Ref	Comment	Draft finding	Concl
Table 11 for AR SSC projects					
1.10 Is the current version of the PDD complete and does it clearly reflect all the information presented during the validation assessment?	DR	PDD	Yes. The information presented was confirmed by the local assessor during the site visit.	Ok	Ok
1.11 Does the PDD use accurate and reliable information that can be verified in an objective manner?	DR	PDD	<p>It is not clear the information in Section B.3 of the PDD where Proinfa is mentioned, as the project did not apply for that programme. Section E.1.2.4 of the PDD mentioned a non-registered PDD (other project) as reference for Emission factor calculation, which was not clear. NIR 1 was raised.</p> <p>To clarify the NIR , the text in the PDD was revised. It was included “ ...As other similar projects, despite its attractiveness, the Braço Norte III project did not apply for participation in Proinfa.”</p> <p>It was not clear how the baseline emission factor was calculated (data and formulas). NIR 2 was raised.</p> <p>Data were checked by the local assessor on site. The PDD was revised to include additional information; the emission factor (0.5364 t CO<sub>2</sub> e/MWh) was calculated according to the most recent data available from ONS. NIR 2 was closed out.</p> <p>The other information presented (location, specification and capacity of the SHP, total amount of electricity generated and sources of external data and references regarding baseline scenario and additionality) were accurate and reliable, as verified in field by the local assessor and during the document review.</p>	<p>NIR 1</p> <p>NIR 2</p>	<p>Ok</p> <p>Ok</p>

**Table 2 Baseline methodology(ies) (Ref: PDD Section B and E and Annex 3 and AM) Normal CDM projects only – N/A**

**Table 3 Additionality (Ref: PDD Section B3 and AM) Normal CDM projects only – N/A**

**Table 4 Monitoring methodology (PDD Section D and AM) Normal CDM Projects only – N/A**

**Table 5 Monitoring plan (PDD Annex 4) Normal CDM Project activities only – N/A**

**Table 6 Environmental Impacts (Ref PDD Section F and relevant local legislation) Normal CDM Project Activities only – N/A**

**Table 7 Comments by local stakeholders (Ref PDD Section G) All CDM Project Activities**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
7.1 Have relevant stakeholders been consulted?	PDD	DR	Yes. A list of organizations consulted was provided in the PDD and confirmed by the local assessor.	Ok	Ok
7.2 Have appropriate media been used to invite comments by local stakeholders?	PDD	DR	Verify letters sent to stakeholders. It was verified by the local assessor that Guarantã Energética sent letters to stakeholders, describing the project the and inviting for comments (letters sent in local language - Portuguese).	Verify	Ok
7.3 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	PDD/ Reso lution n°1	DR	Verify if the process complied with Resolution n°1. Letters were sent to local stakeholders on 30 <sup>th</sup> January 2006. The following organizations were invited: <ul style="list-style-type: none"> <li>Environment Secretary of the State of Mato Grosso;</li> </ul>	CAR 3	Ok

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<ul style="list-style-type: none"> <li>• Climate Change Brazilian forum: Fórum Brasileiro de Mudanças Climáticas;</li> <li>• NGOs' Brazilian forum: Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e Desenvolvimento;</li> <li>• Environmental state agency: Fundação Estadual do Meio Ambiente (FEMA-MT);</li> <li>• Mayor, President of the County Hall and Secretary in charge of Environment of the county of Guarantã do Norte.</li> </ul> <p>In addition to the list mentioned above, it is required to invite the local communities and the Public Attorney of Mato Grosso. CAR 3 was raised.</p> <p>To close out CAR 3, it was verified the letter sent on 15 May 2006 to Ministério Público and on 9 June 2006 to a local organization.</p>		
7.4 Is a summary of the stakeholder comments received provided?	PDD	DR	Yes, no comments received.	Verify	Ok
7.5 Has due account been taken of any stakeholder comments received?	PDD	DR	No comments received.	OK	Ok

**Table 8 Other requirements All CDM project activities**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
<b>8.1 Project Design Document</b>					

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8.1.1 Editorial issues: does the project correctly apply the PDD template and has the document been completed without modifying/adding headings or logo, format or font.	PDD	DR	Yes.	Ok	Ok
8.1.2 Substantive issues: does the PDD address all the specific requirements under each header. If requirements are not applicable / not relevant, this must be stated and justified	PDD	DR	Yes.	Ok	Ok
<b>8.2 Technology to be employed</b>					
8.2.1 Does the project design engineering reflect current good practices?	PDD	DR	Yes.	Ok	Ok
8.2.2 Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	PDD	DR	As described in the PDD and verified by the local assessor, Braço Norte III is a small run of river hydro plant with 14.16 MW installed capacity. This run-of-river project does not have any dam or water storage, and therefore makes complete use of the water flow. The equipment used in the project was developed and manufactured in Brazil. The plant consists of two sets of turbine-generators. The turbines are Kaplan S elbow type turbines, being the most adequate technology as of today.	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8.3 Is the project technology likely to be substituted by other or more efficient technologies within the project period?	PDD	DR	It is not expected.	Ok	Ok
8.2.4 Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	PDD	DR	As described in the PDD and verified by local assessor during the site visit, electricity generation is the core business of Braço Norte III plant. No additional management structure or extensive training were required for the CDM project. Operation, maintenance, monitoring and reporting are part of the routine of the plant.	OK	Ok
<b>8.3 Duration of the Project/ Crediting Period</b>					
8.3.1 Are the project's starting date and operational lifetime clearly defined and reasonable?	PDD	DR	<p>Section C.1.1 – starting date 3<sup>rd</sup> October, 2003 (it was considered as the starting date of the plant operation).</p> <p>Section C.1.2 – lifetime 30 years.</p> <p>The crediting period started prior to the registration of project activity, and they shall provide evidence that the starting date of the CDM project activity falls between 1 January 2000 and the date of the registration of a first CDM project, and provide evidence that the incentive from CDM was considered.</p> <p>It was verified the meeting notes of Guarantã board ( "Ata de Reunião da Guarantã Energética Ltda" – Ref.13), that considered the CDM project to mitigate the investments costs, dated on 10/09/2001. Although the preliminary project was designed in 1999, the construction and implementation was carried out only in 2001-2002.</p>		Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
8.3.2 Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	PDD	DR	<p>Section C.2.1.2 – crediting period 7 years.</p> <p>Table in section A.4.3.1 (PDD) did not present the correct period of credits. Year 2003 started on 3rd October and the end of the first crediting period should be on 2<sup>nd</sup> October 2010. The annual estimation of ERs should be calculated for the correct period (for each year).</p> <p>The PDD was revised. The values for each year were checked and were correct. A spreadsheet with monthly data of energy generation was provided to check the total of CERs presented. CAR 4 was closed out.</p>	CAR 4	Ok
8.3.3 Does the project's operational lifetime exceed the crediting period	PDD	DR	<p>Yes.</p> <p>Crediting period – 7 years (X 3 =21 years)</p> <p>Operational lifetime: 30 years</p>	Ok	Ok

**Table 9 Additional requirements for SSC project activities only**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
SSC projects use the SSC PDD and simplified baseline and monitoring methodologies as detailed in Appendix B (to the Modalities and Procedures for Small scale CDM projects, Annex II to Decision 21/CP.8) Indicative simplified baseline and monitoring methodologies for selected small scale CDM project activity categories					
9.1 Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	PDD	DR	Yes, renewable energy generation for a grid with 14.16MW. (less than 15MW - the limit for small scale projects)	Ok	Ok
9.2 The project conforms to one of the	PDD	DR	Yes, ID – Grid connected renewable electricity generation.	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
categories listed in Appendix B to Annex II to Decision 21/CP8					
9.3 The small scale project activity is not a debundled component of a larger project activity?	PDD	DR	To be confirmed by local assessor.  Verified during site visit that the project activity is not a debundled of a larger activity. The project is located in the Braço Norte river, close to other plants (Braço Norte and Braço Norte II) on the same river, and another one (Braço Norte IV) which is under construction. Braço Norte and Braço Norte II started their operation before year 2000 (they are not CDM projects). Braço Norte IV is a CDM project, but separate from the Braço Norte III. Both plants are located in the same river but it was confirmed during the site visit that the projects are located > 1km from each other,.	Verify	Ok
9.4 PDD has been prepared in accordance with appendix A of Annex II to Decision 21/CP8	PDD	DR	Yes, the version 02 is correctly applied.	Ok	Ok
9.5 The project uses a simplified baseline and monitoring methodology specified in Appendix B. If not, they may propose changes to the meths or a new SSC project category	PDD	DR	The project applied AMS type I, renewable energy projects. Category I.D – grid connected renewable electricity generation, version 08, 03 March 2006 (version 07 was used in the first version of PDD).  For the discussion of additionality, it was used the “Tool for the demonstration and assessment of additionality”, (SSC projects can use simplified procedures - Attachment A to Appendix B. The project has done more than necessary to demonstrate additionality, but it is acceptable).	Ok	Ok
9.6 Are the emission reductions	PDD	DR	It is calculated using the total of electricity generated *	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
determined in accordance with the methodology described			baseline Emission factor. See also NIR 2 related to the baseline emission factor.		
9.7 Is there any bundling of SSC activities into one PDD? If so, does the monitoring plan consider sampling of activities? Refer to para 19 of Annex II. Also, note bundling provisions in SSC Briefing Note and SSC meths I C / I D and III D and Para 22e of Appendix B	PDD	DR	No.	Ok	Ok
9.8 Is EIA required by host party? If not, none is required irrespective of SHC. If yes, has one been performed consistent with local requirements?	PDD	DR	Verify environmental license and check if state environmental agency requires an EIA.  Verified the environmental study “Diagnóstico Ambiental Prévio da PCH – Braço Norte III”, March 1999 and September 1999, issued by TD Engenharia Ltda.  Verified Previous license number 035/99, 13/04/1999 issued by FEMA.  Verified Installation license number 121/2002, 18/04/2002 issued by FEMA.  Verified Operation license number 1948/2005, 22/11/2005 issued by FEMA.	Verify	Ok
9.9 The project results in emission reductions that area additional in accordance with the following requirements:  (para 26) The project is additional if emissions are reduced below those in the absence of the project	PDD	DR	The emissions are reduced below in the absence of the project.  For the discussion of additionality, it was used the “Tool for the demonstration and assessment of additionality”. References and spreadsheets were provided to support the discussion.	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
<p>(Para 27) Simplified baseline can be used; if not, baseline proposed shall cover all gases, sectors and sources listed in Annex A to the KP</p> <p>Para 28) One or more barriers as detailed in attachment A to Appendix B to Annex II will be used to demonstrate that the project would not proceed without the CDM</p>			<p>The project participant provided the following explanation about the project additionality:</p> <ul style="list-style-type: none"> <li>- The crediting period started prior to the registration of project activity. Documented evidence was provided to demonstrate that the starting date of the CDM project activity falls between 1 January 2000 and the date of the registration of a first CDM project. It was also evidenced that the incentive from CDM was considered by the project developers. The meeting notes of Guarantã board dated on 10 Septemebr 2001 ( "Ata de Reunião da Guarantã Energética Ltda" – Ref.13) was verified. According to this notes, Guarantã Energética board considered the CDM incentive to mitigate the investments costs and to take the decision of continuing to invest in the construction of the Braço Norte III SHP. It was clarified that although the preliminary project was designed in 1999 (as evidenced by the preliminary environmental license), the construction and implementation of Braço Norte III SHP was carried out from May 2001 to September 2003 and the operation started in October 2003. It was confirmed by document review and by interviews with the project developers.</li> <li>- The assumptions and the spreadsheet used for IRR analysis was provided and discussed during the validation process. The investment analysis showed that without CER revenues, the project would reach lower rates of return than the benchmark rate ( IRR values of 15.0% without CER revenues and 16.6% including them). The</li> </ul>		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<p>benchmark rate employed for the analysis is the Brazilian Prime Rate (SELIC), which is the rate used in the short-term capital market. The average annual SELIC value during 2001 (year when the plant started to be constructed) was 17.38%, concluding that CER revenues will be one of the important points for the project's feasibility. The most likely alternative presented would have been not to build Braço Norte III SHP.</p> <p>- Barrier due to prevailing practice: considering the "Common practices analysis", it was discussed that the projects such as Braço Norte III are not widely observed and commonly carried out in the country. It was informed that less than 1.5% of the country's installed capacity is located in small plants.</p>		
9.10 Leakage is calculated according to the provisions of the SSC methodologies in Appendix B ( <a href="http://cdm.unfccc.int/Projects/pac/ssclistmeth.pdf">http://cdm.unfccc.int/Projects/pac/ssclistmeth.pdf</a> )	PDD	DR	Leakage is not applicable.	Ok	Ok
9.11 The project boundary shall be constructed in accordance with the requirements of the SSC meths in Appendix B	PDD	DR	The boundary of project activities encompasses the Braço Norte III plant and the South-Southeast-Midwest national system.	Ok	Ok
9.12 The Monitoring plan shall be consistent with the requirements of the SSC methodology in Appendix B and shall provide for the collection and archiving of data needed to determine project emissions,	PDD	DR	Yes.	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
baseline emissions and leakage.					
9.13 The monitoring plan shall present good monitoring practice appropriate to the circumstances of the project activity (para 33)	PDD	DR	No information about procedure for calibration of meters was provided. NIR 5 was raised. It was informed and verified during the site visit that calibration of meter follows the ONS procedure (see Ref. 7). The section D.5 of the PDD was revised to present this information.	Verify NIR 5	Ok
9.14 If project activities are bundled, separate monitoring plan shall be prepared for each of the activities or an overall plan reflecting good monitoring practice will be prepared, consistent with the above requirements	PDD	DR	It was confirmed that the project is not bundled.	Ok	Ok

**Table 10 Additional requirements for AR projects**

**Table 11 Additional requirements for SSC AR projects**

**Table 12 Additional information to be verified by local assessors / site visit**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
Check the starting date of the project	Site visit	DR/I	Verified contract between Garantă Energética and Alstom Brasil, 03/05/2001 (contract for purchasing and	Ok	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
activity: verify documents that evidence the start date of construction and operation start up.			installation of the turbines) – Ref.1. Verified contract between Guarantã Energética and Gevisa, 02/10/2001(contract for purchasing and installation of the generators) – Ref.2. Verified the energy invoices issued by the company since the project start (October 2003 – December 2005).		
Verify if the project is licensed by the national agencies (Energy):  Verify operation licence issued by ANEEL	Site visit	DR/I	Resolution n° 374, 20 September 2000, ANEEL (Ref.3). Despacho n° 603, 30 September 2002, ANEEL (Ref. 4). Despacho n° 715, 3 October 2003, ANEEL (Ref.5). Despacho n° 854, 11 November 2003, ANEEL (Ref.6).	Ok	Ok
Verify the analysis of IRR (premises adopted, cash flow etc). Ask copy of the spreadsheet used for calculations.	Site visit	DR/I	The spreadsheet was provided (Ref.12). The analysis was discussed with the project developers.	Verify	Ok
Confirm the reservoir area informed in the PDD. Verify maps.  Confirm project implementation as described in the PDD.	Site visit	DR/visit	The project installation was confirmed during site visit. Verified map of the reservoir. The area 1,3 km <sup>2</sup> was confirmed by the local assessor.	Ok	Ok
Verify calibration procedure for the electricity meter.	visit	DR/I	It was informed that calibration of meter follows the ONS procedure (see Ref. 7). The section D.5 of the PDD was revised to present this information.	Verify	Ok
Verify evidences about the baseline emission factor (data sources and calculation).	visit	DR/I	Data were checked by the local assessor during onsite visit. The PDD was revised to include additional information; the emission factor (0.5364 t CO <sub>2</sub> e/MWh) is calculated according to the most recent data available from ONS (years 2002 to 2004).	Verify	Ok

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
Verify environmental requirements (local and national). Verify environmental licenses issued by the state agency.		DR// visit	<p>Verified the environmental study “Diagnóstico Ambiental Prévio da PCH – Braço Norte III”, March 1999 and September 1999, issued by TD Engenharia Ltda (Ref.8).</p> <p>Verified Previous license n° 035/99, 13/04/1999 issued by FEMA (Mato Grosso State Environmental Agency) – Ref.9.</p> <p>Verified Installation license n° 121/2002, 18/04/2002 issued by FEMA (Ref.10).</p> <p>Verified Operation license n° 1948/2005, 22/11/2005 issued by FEMA (Ref.11).</p>	Ok	Ok

References consulted during Ground Truthing and brief summary of content / significance [please try to obtain a hard copy where ever possible]:

Ref no.	Title (full bibliographic reference if possible)	Brief note on content / significance	Hard copy (Y/n)
1	Contract between Guarantã Energética and Alstom Brasil, 03/05/2001.	Turbines purchasing/installation contract.	Y
2	Contract between Guarantã Energética and Gevisa, 02/10/2001.	Electricity generators purchasing/installation contract.	Y
3	Resolution number 374, 20 September 2000, ANEEL.	Authorization to generate energy, small hydro power Braço Norte III.	Y
4	Despacho n° 603, 30 September 2002, ANEEL.	Authorization to generate 14,16MW.	Y
5	Despacho n° 715, 3 October 2003, ANEEL.	Authorization to start energy generation in the unit 1.	Y
6	Despacho n°r 854, 11 November 2003, ANEEL.	Authorization to start energy generation in the unit 2.	Y

7	Módulo 12 – Medição para Faturamento (ONS).	ONS procedures for installation, measuring, calibration, maintenance, certification. (ONS – Operator of the Electricity National System)	Y
8	Diagnóstico Ambiental Prévio da PCH – Braço Norte III, March 1999 and September 1999, issued by TD Engenharia Ltda.	Environmental study.	Y
9	Previous license number 035/99, 13/04/1999 issued by FEMA.	Environmental license – preliminary	Y
10	Installation license number 121/2002, 18/04/2002 issued by FEMA.	Environmental license – construction	Y
11	Operation license number 1948/2005, 22/11/2005 issued by FEMA.	Environmental license – operation	Y
12	DCP BN3 version 1 Financial analysis.	Spreadsheet (Excel) used for IRR analysis.	Y
13	Ata de Reunião, 10/09/2001.	Meeting notes of Guarantã Energética board (Documented evidence for the step 0).	Y

Individuals interviewed during Validation and Ground Truthing [name, position and contact details, plus a brief summary of points discussed]

Date met	Name	Position	Contact details	Brief note on subject of interview
9 <sup>th</sup> and 10 <sup>th</sup> March 2006	Edno Negrini	Executive Director	Guarantã Energética. <a href="mailto:enegrini@grupoamper.com.br">enegrini@grupoamper.com.br</a>	Technical information, procedures, contracts, licenses.
9 <sup>th</sup> and 10 <sup>th</sup> March 2006	Clóvis Badaró	Director	Lumina Energia. <a href="mailto:Clovis.badaro@luminaenergia.com.br">Clovis.badaro@luminaenergia.com.br</a>	Baseline study, PDD, monitoring plan.

9 <sup>th</sup> and 10 <sup>th</sup> March 2006	Pedro Geraldo	Energy Coordinator	Garantã Energética.	Contracts and licenses.
9 <sup>th</sup> and 10 <sup>th</sup> March 2006	Luis Battaini	Engineer	Eletram. +55 (66) 552-1127	Technical information, site visit, plant installation and construction.

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