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## CDM Executive Board



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|--------------------------|---------------------------|---|------------------|---------------|--------|
|                          | IS-CMS-MUC/<br>Caiyang Wu | +49 89 5791-2841<br>Caiyang.Wu@tuev-sued.de | +49 89 5791-2756 | 2010-02-26    | 1 of 8 |

## Response to the project activity under Review

Dear Sir/Madam,

Please find below the response to the review formulated for the CDM project with the title "*Fenglin Hydropower Project*" with the registration number 2846. In case you have any further inquiries please let us know as we kindly assist you.

Yours sincerely,

Thomas Kleiser  
Head of the Certification Body

## Annex: Information Reference List

Headquarters: Munich  
Trade Register: Munich HRB 96 869

Supervisory Board:  
Dr.-Ing. Manfred Bayerlein (Chairman)  
Board of Management:  
Dr. Peter Langer (Spokesman)  
Dipl.-Ing. (FH) Ferdinand Neuwieser

Telefon: +49 89 5791-3038  
Telefax: +49 89 5791-2756  
[www.tuev-sued.de/is](http://www.tuev-sued.de/is)  
**TÜV**®

TÜV SÜD Industrie Service GmbH  
Niederlassung München  
Umwelt Service  
Westendstrasse 199  
80686 Munich  
Germany

## Response to the CDM Executive Board

### **Request for clarification to the PP/DOE:**

#### **Scope:**

*A review to determine the additionality of the project activity through an assessment of the suitability of the tariff applied, 0.36 RMB/kWh (including VAT), in the project IRR calculation considering that there are higher tariffs in Jilin province (such as 0.45 RMB/kWh, including VAT) and as the project IRR crosses the benchmark when such higher tariff is applied to this project activity.*

#### **Context:**

In response to the request for review, the PP/DOE have explained that the tariff approved for this project activity is 0.36 RMB/kWh including VAT. However, the Board noticed that the highest available tariff approved for registered CDM projects in Jilin province is 0.45 RMB/kWh including VAT. The project IRR crosses the selected benchmark when applying the highest tariff.

#### **Question 1:**

The DOE is requested to provide information on the total number of hydropower projects exporting electricity to the same grid as this project activity (both CDM and non CDM projects), and the commissioning dates of these projects.

#### **Response by TÜV SÜD:**

As per VVM (Version 1.01; §15b) it is indicated that consistency is achieved by “Applying uniform criteria among project activities with **similar characteristics** such as a similar application of the approved methodology, use of technology, time period or region”. The VVM further indicates that standard auditing techniques include “Reference to available information relating to projects or technologies **similar** to the proposed CDM project activity under validation; ...” (Version 1.01; §33c). Further on, the additionality tool (Version 05.2 as well as previous versions) also indicates that only “Based on the information about activities **similar** to the proposed project activity, the common practice analysis is to complement and reinforce the investment and/or barriers analysis.”

In the light of these guidelines from the EB, TÜV SÜD provides the information on the total number of similar hydropower projects. Similar projects have been defined as hydropower projects that:

- are located in the same province (the investment environment varies from province to province within China, which is a result from a number of factors including the economic development level, the industrial and fundamental structure as well as the development strategy and the policy framework; in addition a number of key factors is different in each

province such as cost of materials, cost of labor and services, types of loans, etc.)

- are implemented after 2002 (i.e. after the Chinese Power Reform);
- With a capacity range of +/- 50% of the capacity (16~48 MW) of the proposed project (as indicated in request for reviews; e.g. 2010). Information of hydro projects with installed capacity under 50MW is provided as consideration of expanded range. This approach is also following the Classification & Design Safety Standard of Hydropower Projects (DL5180-2003; UR 2).

The proposed project is connected to, and has obtained the permission to sell (UR 1) the generated electricity to the Jilin Province Power Grid<sup>1</sup>. There are 36 similar hydro power projects (4 CDM and 32 non-CDM projects), which are operated and exporting electricity to the Jilin Province Power Grid. Requested information is listed as below.

**Table of CDM Projects**

| No. | Project Name   | Installed Capacity (MW) | Tariff RMB/kWh (with VAT) | Commissioning Date | Current Status in UNFCCC Website |
|-----|--|-------------------------|---------------------------|--------------------|----------------------------------|
| 1   | Antu 303 Hydropower Project                                | 6                       | 0.393                     | 2008               | In Validation                    |
| 2   | Antu Gudonghe I Hydro Power Project                        | 3.2                     | 0.360                     | 2009               | In Validation                    |
| 3   | Shuanghe Second Small Hydropower Project in Jilin Province | 12                      | 0.356                     | 01/2010            | In Validation                    |
| 4   | Jilin Xijingou Hydro-power Project                         | 48                      | 0.450                     | not yet            | Registered                       |

**Table of non CDM Projects**

| No. | Project Name                      | Installed Capacity (MW) | Tariff RMB/kWh (with VAT) | Commissioning Date |
|-----|-----------------------------------|-------------------------|---------------------------|--------------------|
| 1   | Heihe Hydropower Station          | 0.225                   | 0.270                     | 11/2002            |
| 2   | Xinbeiji Jiang Hydropower Station | 8                       | 0.335                     | 05/2003            |
| 3   | Xiaohu Hydropower Station         | 3                       | 0.280                     | 01/2004            |
| 4   | Jiazai Hydropower Station         | 0.075                   | 0.320                     | 04/2003            |

<sup>1</sup> Jilin Province Power Grid is part of the regional Northeast China Power Grid (NEPG).

| No. | Project Name   | Installed Capacity (MW) | Tariff RMB/kWh (with VAT) | Commissioning Date |
|-----|--|-------------------------|---------------------------|--------------------|
| 5   | 1 <sup>st</sup> Phase of Shuangshan Hydropower Station | 4                       | 0.295                     | 02/2004            |
| 6   | 2 <sup>nd</sup> Phase of Shuangshan Hydropower Station | 4                       | 0.320                     | 07/2005            |
| 7   | 3 <sup>rd</sup> Phase of Shuangshan Hydropower Station | 4                       | 0.320                     | 01/01/2006         |
| 8   | 2 <sup>nd</sup> Phase of Jinshan Hydropower Station    | 0.36                    | 0.280                     | 01/2006            |
| 9   | Jinshan Hydropower Station                             | 0.375                   | 0.280                     | 11/2006            |
| 10  | 2 <sup>nd</sup> Phase of Da'an Hydropower Station      | 0.64                    | 0.280                     | 01/04/2006         |
| 11  | Qingfeng Hydropower Station                            | 0.375                   | 0.280                     | 10/04/2006         |
| 12  | Songyue Hydropower Station                             | 0.375                   | 0.280                     | 01/05/2006         |
| 13  | Renchuan Hydropower Station                            | 0.055                   | 0.280                     | 15/09/2006         |
| 14  | Changlong Hydropower Station                           | 0.275                   | 0.280                     | 08/05/2004         |
| 15  | Hongyegu Hydropower Station                            | 2.52                    | 0.370                     | 12/03/2006         |
| 16  | Yongming Hydropower Station                            | 0.285                   | 0.280                     | 2003               |
| 17  | Guangming Hydropower Station                           | 5                       | 0.393                     | 05/04/2007         |
| 18  | Helong Hydropower Station                              | 4.5                     | 0.393                     | 05/09/2007         |
| 19  | Lishu Fumin Hydropower Station                         | 0.525                   | 0.280                     | 25/03/2006         |
| 20  | Quanxing Hydropower Station                            | 0.375                   | 0.280                     | 12/04/2007         |
| 21  | Anyu Hydropower Station                                | 0.2                     | 0.280                     | 26/09/2007         |
| 22  | Baoshan Hydropower Station                             | 2                       | 0.280                     | 08/10/2007         |
| 23  | Xiaoyu Hydropower Station                              | 0.375                   | 0.280                     | 15/10/2007         |
| 24  | Fengyuan Hydropower Station                            | 1.2                     | 0.280                     | 20/11/2007         |
| 25  | Xingyuan Hydropower Station                            | 0.48                    | 0.280                     | 25/10/2007         |
| 26  | Hongyuan Hydropower Station                            | 0.2                     | 0.280                     | 2008               |

| No. | Project Name                 | Installed Capacity (MW) | Tariff RMB/kWh (with VAT) | Commissioning Date |
|-----|------------------------------|-------------------------|---------------------------|--------------------|
| 27  | Shengli Hydropower Station   | 0.435                   | 0.280                     | 2008               |
| 28  | Anfu Hydropower Station      | 0.26                    | 0.280                     | 2008               |
| 29  | Aimin Hydropower Station     | 0.36                    | 0.280                     | 2008               |
| 30  | Jiangfeng Hydropower Station | 0.235                   | 0.280                     | 2008               |
| 31  | Feiyu Hydropower Station     | 0.25                    | 0.280                     | 2008               |
| 32  | Rongfeng Hydropower Station  | 0.96                    | 0.280                     | 2008               |

### **Question 2:**

Where available the DOE should indicate the tariff applicable to each of these project activities. Where not available, the DOE should explain how it exercised due diligence in following up the request of the Board, e.g. by including written evidence from regulators on the unavailability of data.

### **Response by TÜV SÜD:**

Tariff for each project is indicated in the response for Question 1.

The observed high tariff of 0.45 RMB/kWh including VAT derived from Jilin Xijingou Hydropower Project (project 2435) is included as well, although the project is not yet operated.

The similar hydro projects indicated above can be confirmed completed with the evidence (UR 3) from Hydroelectric Bureau of Jilin Province.

### **Question 3:**

If not already provided in the original validation report or in answer to the request for review, the DOE should describe how the proposed tariff for this project activity was determined.

### **Response by TÜV SÜD:**

The proposed tariff was determined as 0.36 RMB/kWh (with VAT) in the Preliminary Design Supplementary Report (PDSR; UR 4) and PDD. The estimated tariff in PDSR adopted the approved tariff from Development and Reform Commission of Jilin Province on 28 April 2005 (UR 5). Tariff determination was verified by TÜV SÜD during the validation process and the validation opinions were clearly presented in validation report dated on 3 August 2009.

Appropriateness of the applied tariff in the proposed project was evidenced by the Power Purchase Agreement (UR 1) signed on 12 October 2009. Validation opinions on the used input values were already addressed in the response to request for review on 4 January 2010.

**Question 4:**

Where previous tariffs are higher than the tariff applicable to this project activity, the DOE should explain the reasons for this and provide an opinion as to whether the net return to the investor has been reduced as a result of the reduction in tariffs.

**Response by TÜV SÜD:**

As per para. 112 (c), VVM Version 01.1, *in cases where project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities, DOEs are required to ensure that the input values from the FSR are valid and applicable at the time of the investment decision.*

The proposed tariff was cited from the PDSR in August 2005. The PDSR was approved on 16 September 2005 by Water Resource Department of Jilin Province (UR 6). The investment decision was evidenced by the Board meeting on 31 October 2005 (UR 7). Considering this information, TÜV SÜD cross-checked all tariffs from similar projects in the region which were applicable up to 31 October 2005. The detected highest tariff was 0.335 RMB/kWh (with VAT), which was lower than the estimate - 0.36 RMB/kWh (with VAT) in proposed CDM project. Hence TÜV SÜD confirms the adopted tariff is appropriate and realistic according to the CDM requirement.

**Question 5:**

The DOE should explain what policy considerations have been applied in determining tariffs for similar projects and whether these differ from the policy considerations affecting the tariff for this project.

**Response by TÜV SÜD:**

According to the Notification of Tariff Reform and Implementation (Fagaijiage[2005]514; UR 8), conventional hydropower plants would participate in market competition. Based on the market mechanism, on-grid tariff was constituted with Building Tariff and Operating Tariff. Building Tariff was regulated by the Price Bureau and Operating Tariff would be the result of negotiation between the hydropower plants and the grid company. Operating Tariff was determined by concerning the main role of the hydropower plant in connected grid system, for example, fulfillment for the adjusted peak load with its storage capacity. The final fixed on-grid tariff would be managed and controlled by the Price Bureau. Thus bus-bar tariff for small hydro projects in Jilin Province was set as 0.28 RMB/kWh including VAT (UR 9) in 2005, and increased into 0.31 RMB/kWh including VAT (UR 10) in 2009. The policy considerations are the same for this and other projects and the aim is to guarantee a minimum tariff for all similar projects in the region.



**Question 6:**

The DOE should state the tariff value at which the IRR of the project activity would reach the benchmark.

**Response by TÜV SÜD:**

When applying 8% benchmark to test the financial feasibility, the required tariff value would be 0.44 RMB/kWh (with VAT).

**Question 7:**

For comparison purposes the DOE and PP shall provide information on the tariffs applicable to common non-renewable energy types in the region and the trend in these tariffs.

**Response by TÜV SÜD:**

According to the statistics<sup>2</sup> from Northeast China Bureau of State Electricity Regulatory Commission of China, bus-bar tariff for coal-fired power plants was increased between 2004 and 2008 in Jilin Province. Details are listed as below.

| Starting Implement Date | Tariff (RMB/kWh)   |                    | Official Document    |
|-------------------------|--------------------|--------------------|----------------------|
|                         | Undesulfured Units | Desulfurized Units |                      |
| 25/06/2004              | 0,3000             | 0.3150             | Fagaijiage[2004]1124 |
| 01/05/2005              | 0.3240             | 0.3390             | Fagaijiage[2005]666  |
| 30/06/2006              | 0.3410             | 0.3560             | Fagaijiage[2006]1231 |
| 01/10/2007              | Unchanged          | Unchanged          | Fagaijiage[2007]2542 |
| 01/07/2008              | 0.3457             | 0.3607             | Fagaijiage[2008]1678 |
| 20/08/2008              | 0.3607             | 0.3757             | Fagaidian[2008]259   |

**Question 8:**

The DOE should explain which "reference tariff" would be calculated if, starting with the highest observed tariff for similar types of projects in the province concerned, this highest tariff would be taken as point of departure and then changed/lowered only according to the justified and quantitatively substantiated changes over time of the project's investment and operating costs. In this assessment all costs have to be taken into account. The "reference tariff" thus calculated may be considered as the tariff not changing/affecting the incentive to the investor/operator of the project. The DOE should then explain the impact of assuming this "reference tariff" in calculating the IRR for the demonstration of additionality.

**Response by TÜV SÜD:**


After checking and applying the investment and O&M costs from various projects into the available spreadsheets from the UNFCCC website, TÜV SÜD noticed that there appears to be no

<sup>2</sup> <http://dbj.serc.gov.cn/dbdjWeb/webeditor/UploadFile/20090311065531766.xls>




reasonable relation between the investment / O&M costs and the tariff. In addition, we would like to point out that there are several additional parameters that highly affect the result of the IRR, such as the period of assessment and the amount of power generated and sold to the grid, etc. Hence, TÜV SÜD considers the calculation of a “reference tariff” as unreasonable. The “reference tariff does not allow to draw a meaningful conclusion on the additionality of a project. Moreover, we are not aware of any CDM requirement to calculate such a “reference tariff”.



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| Ref. No. | Issuance and/or submission date | Title/Type of Document  | Author/Editor/ Issuer   | Additional Information (Relevance in CDM Context) |
|----------|---------------------------------|---|---|---|
| UR 1     | 12/10/2009                      | Power Purchase Agreement  | Jilin Province Local Water & Electricity Co., Ltd. and Baishan Power Supply Company |   |
| UR 2     | 01/07/2003                      | Classification & design safety standard of hydropower projects (DL5180-2003)                            | State Economic and Trade Commission, People's Republic of China                     |   |
| UR 3     | 26/02/2010                      | Explanation on grid tariff of small hydro projects in Jilin Province                                    | Hydroelectric Bureau of Jilin Province  |   |
| UR 4     | 08/2005                         | Preliminary Design Supplementary Report   | Jilin Province Water Resource and Hydropower Consultative Company                   |   |
| UR 5     | 28/04/2005                      | Letter on Electricity Tariff to Power Grid of Fenglin Hydropower Project                                | Jilin Province Development and Reform Commission                                    |   |
| UR 6     | 16/09/2005                      | Approval to the Preliminary Design Report (with the Supplementary Report) of Fenglin Hydropower Project | Water Resource Department of Jilin Province   |   |
| UR       | 31/10/2005                      | Board Decision  | Jilin Province Local  |   |

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| Ref. No. | Issuance and/or submission date | Title/Type of Document   | Author/Editor/ Issuer                                 | Additional Information (Relevance in CDM Context) |
|----------|---------------------------------|--|---|---|
| 7        |                                 |  | Water & Electricity Co., Ltd                          |   |
| UR 8     | 28/03/2005                      | Notification of Tariff Reform and Implementation (Fagaijiage[2005]514)   | National Development and Reform Commission, P.R.China |   |
| UR 9     | 08/05/2005                      | Implementation on Coal Price Linked Tariff of the Northeast Power Grid, Notice of National Development Commission (Jifagaijiagezi [2005] No.46)                  | Jilin Province Development and Reform Commission      |   |
| UR 10    | 20/11/2009                      | Notice on Grid Tariff Adjustment in the Northeast Power Grid, New Tariff Regulation from National Development and Reform Commission (Jishengjiage [2009] No.227) | Price Bureau of Jilin Province                        |   |