The firm submitting the nomination is a member of

China National Association of Engineering Consultants (CNAEC)

(Please indicate name of FIDIC MA/Associate or Affiliate and country)

Please attach a letter from the FIDIC MA/Associate or Affiliate in your country validating your submission.

Why do you think this project should receive an award? How does it demonstrate:

- Innovation, quality, and professional excellence
- The principles of transparency and integrity
- Sustainability and respect for the environment

1. Overview

1.1 The project route is 78.629 km long with designed driving speed of 120 km/h and six lanes in two ways. The roadbed is 34.5 m in width. The highway is all insulated, and interconnected with interchanges only, with 54800 pcu/d designed annual traffic.

1.2 This project started in May, 2010 as planned, and was operated from December, 2013. The total project investment is 8.52 billion RMB, (1.38 billion USD)

2. Innovative and outstanding technology of the highway

2.1 This project is the first operating high-standard highway in China that has employed the "BOT+EPC" construction and management mode. Based on the contract of FIDIC general terms and conditions, it uses target control & process management and highlights the leading role of engineering consultants. With dynamic optimization carried out throughout the entire process of construction, the project exemplifies the notion of "the maximum saving can only be achieved with saving in design". With 110-million-RMB saved, this "BOT+EPC" construction and management mode has been promoted and adopted in other projects of highway construction in China.

2.2 As the first green low carbon demonstration highway in China, it has been selected as one of the 2013 Top 10 News regarding China's tackling climate change and low carbon

development. In the project construction, 18 low carbon environmentally friendly techniques, including rubber-asphalt pavement, warm mix asphalt, LED lamps and intelligent-conditioning lighting system, solar PV supply, longitudinal feedforward intelligent ventilation system, ETC system, zero effluent discharge in service zones, rainwater collection and treatment in water sensitive zones, green buildings standard in service zones, utilization of mucking debris in tunnels, and carbon sink forest ecological construction in the highway areas have been employed comprehensively, leading to annual energy saving of 240,000 tce and CO_2 emission reduction up to 610,000 tons.

2.3 This project has attained internationally advanced level with four lanes in a single tunnel and super large cross section technology under the conditions of limestone karst, coal seam, fault, excavating lane and high pressure & enriched water compound stratum. With the maximum excavation span up to 19.47 m, the maximum excavation height up to 13.16 m and maximum excavation section up to 213.22 m^2, the project represents the largest tunnel of the same type with the world's forefront design and construction.

2.4 Given that Sichuan district features large quantities of rainfall and a large proportion of paddy fields, the technology of rubble-embedding with heavy load has been adopted. This technology not only addresses the perplexing problem of over wet soil roadbed, but also reduces the use of raw building materials by making the most of mucking debris from the tunnel.

2.5 Duo to the heavy rainfall, engineers innovatively used dish-shaped drain treatment in the median strip of the roadbed, which not only successfully avoided the road surface pollution caused by rainwash, but also improved water and soil conservation, harmoniously integrating highway into nature.

2.6 The Western Chongqing Hub Interchange adopted "altered Y-shape + altered single trumpet shape" type, which successfully solved the puzzle of interchange layout design under complex boundary conditions. The Interchange is immense in scale with the ramp length up to

5784.5 m, bridge span up to 3124.2 m (19 bases), a covered area of 830 mu and a total investment of 450 million RMB (72.6 million USD).

2.7 Grooves with green plants have been placed in median strip of bridges, which not only avoided glaring effect, but created pleasant landscape scenery.

2.8 World advanced geological exploration techniques and methods have been applied comprehensively to implement the principle of "Geology Route Selection"; Scientific and sound route corridor zones have been selected.

3. A green low carbon highway in harmony with nature

3.1 The project has followed the design concept of "safety, thriftiness, environment-friendliness and low carbon". Through routing optimization, the project has reduced the use of subgrade earthwork by 1.86 million m^3, achieved 65.7% use rate of tunnel mucking debris, minimized human impact and maximized protection of nature.

3.2 The project adopted rubber-asphalt pavement for the first time. It has not only implemented used-tire recycling, but also reduced carbon emission by 1250 tons. In addition, the project improves riding comfort level by reducing the noise of rolling wheels with high speed.

3.3 The project has adopted warm mix asphalt technology, which reduces the construction temperature of asphalt by 40℃-60℃, saving energy by 40% compared with traditional techniques, and reducing greenhouse gas emission by over 50% and toxic gas like asphalt fume by over 90%.

3.4 LED energy-saving lamps were installed along the route. The lighting intelligent-conditioning system was used to conduct smart control in line with changes in weather, time, road sections and traffic. With this system, the comprehensive power saving ratio is about 66%, with annual power saving amounting to 2.04115 million Kw•h, and annual energy saving 637.58 tce. Also with this system, annual CO_2 emission has been reduced by

2385.8 tons and it is estimated that in twenty years the accumulated CO_2 emission reduction will reach 47700 tons.

3.5 The four tunnels along the route have all adopted longitudinal feedforward intelligent ventilation technology, saving 15-20% investment compared with transverse ventilation, reducing energy by 21.65%, and cutting down on/off frequency by approximately 42.8%. With this technology, the annual power saving reaches 67185 Kw•h, saving 221.5 tce energy annually, and annual CO_2 emission is reduced by 785.5 tons. It is estimated that twenty years from now the accumulated CO_2 emission reduction will be 15700 tons.

3.6 This project used solar PV at the entrance of tunnels. With intelligent switch technology, the dynamic switching between tunnel lighting and sun illumination leads to 48380 Kw•h power saving annually, energy saving of 15.967 tce, and CO_2 emission reduction of 56.554 tons. It is estimated that in twenty years accumulated CO_2 emission reduction will reach 1100 tons.

3.7 The ETC system has been installed in each and every toll, which shortens the stop time of every vehicle from 30 seconds to 3 seconds, and improved the traffic lane capacity by 2 to 3 times. The ETC system helps reduce the CO_2 emission amount by 16.84 kg/h and 42.80 kg/h at the entrance and exit of every ETC lane.

3.8 Green building standards have been applied to the buildings in service areas along the highway, with the average annual energy saving of 2.277 tce. It is estimated that twenty years from now accumulated energy saving will reach 258.42 tce and CO_2 emission reduction 920 tons.

3.9 Chongqing is known as the City of Fog in China. The project uses highway smart fog early warning system in sections prone to form agglomerate fog. With infrared induction technology, the system can intelligently track and identify the driving route and position of vehicles on the highway under low visibility conditions in mist zones through comprehensive perception, automatic study and judgment, and active control. Then the system gives the following vehicles multi-colored flash warning to reduce the risk of rear-end collision.

3.10 The project has become fully covered green corridors, improved water and soil conservation, reduced noise, absorbed carbon, and achieved the effect of "highway stretching out in picture-like scenes, and traveling becoming a sightseeing experience".

4. Transparency and Integrity

4.1 The project integrated the ISO Quality Management System and systematically adopted the FIDIC Integrity Management System in the project planning stage. Its pragmatic Integrity management system has covered the entire process of the project including consultation, design, construction and operation management.

4.2 Integrity evaluation (identification, analysis and evaluation) has been conducted and code of conduct has been formulated. The colleagues have received training and signed liability statements.

4.3 Integrity measures have been formulated and implemented. Integrity management process program has been made for the key phases of the project such as project bidding and procurement. Integrity files have been made with sensitive information recorded.

4.4 The third party consultation has been conducted with CCCC First Highway Consultants Co. Ltd. in order to carry out consultative examination on technological achievements and to implement openness and transparency of technology.

4.5 Internal and external communication and negotiation mechanism has been established. In line with legal requirements, public information has been disclosed for media supervision and to satisfy the citizen's right to know.

4.6 The whole process of the project has been open to close supervision and examination with regular internal audit. Upon completion, the project has received audit from related state and local departments. With the project fund reasonably regulated, no breach of code of conduct has been found on the part of consulting engineers.