ISOLUX CORSÁN

**RFEI HSR#15-02**

**SEPTEMBER 28, 2015**

# RESPONSE TO THE REQUEST FOR EXPRESSIONS OF INTEREST FOR THE DELIVERY OF AN INITIAL OPERATING SEGMENT

CALIFORNIA High-Speed Rail Authority

CALIFORNIA High-Speed Rail Authority

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# 1. CONTENTS

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# 2. TRANSMITTAL LETTER

September 28, 2015

**Ms. Rebecca Harnagel**
**California High-Speed Rail Authority**
**770 L Street, Suite 620 MS 2**
**Sacramento, CA 95814**

**RE**: RFEI HSR#15-02, REQUEST FOR EXPRESSIONS OF INTEREST FOR THE DELIVERY OF AN INITIAL OPERATING SEGMENT

Dear Ms. Harnagel:

Isolux Corsan LLC, on behalf of Isolux Corsan Group ("**Isolux Corsan**" or "**Isolux Corsan Group**"), is pleased to provide its response to the Request for Expressions of Interest for the Delivery of an Initial Operating Segment RFEI HSR#15-02 ("**RFEI**").

Isolux Corsan LLC is part of Isolux Corsan Group, a global leader in the areas of civil construction and infrastructure, railways, roads, railways traction power, systems and energy investments, with a track record of success spanning over 80 years. Isolux Corsan Group currently employs more than 8,500 individuals in 40 countries on four continents (including 6,000 in the EPC business). In 2014, Isolux Corsan Group's revenue was $2.6 billion[1] ($3.4 billion Pre-IFRS11) and its EBITDA was $310 million ($753 million Pre-IFRS11). Isolux Corsan established its North American headquarters in Austin, Texas in 2009 and employs approximately 100 personnel actively engaged in developing its public-private partnership ("**P3**") and Engineering, Procurement, and Construction ("**EPC**") business lines in railway infrastructure, high-voltage transmission line construction, and renewable and fossil fuel projects.

Isolux Corsan has a substantial global footprint in both High Speed Rail ("**HSR**") civil works and track, electrification and high-voltage power transmission and delivery, and has over 15 years' experience in HSR design-build project implementation. Isolux Corsan has specialized technology for overhead contact systems ("**OCS**") and traction power engineering, as well as global purchasing teams with local leverage, and highly experienced labor, and construction management teams that provide excellent craftsmanship for the on-time implementation of turnkey projects.

Isolux Corsan has participated in the construction of more than 800 miles of HSR infrastructure, including the construction of 260 double track railway miles of civil works infrastructure, the installation of more than 1,000 miles of OCS, the erection of more than 50 traction power supply systems ("**TPSS**") and autotransformer stations, (iv) the deployment of protection and

[1] *Unless otherwise indicated, all amounts are expressed in US Dollars.*

SCADA remote power controls for substations and autotransformers, and (v) the installation of 100 miles of communication-based signaling systems.

Some of our key strengths which ensure success in our HSR projects are:

- Our understanding of the complexity of HSR networks, namely that these networks require fully integrated systems of civil works, track, electrification, signaling, and communications;

- Our extensive know-how in working with international teams and local participants, going wherever necessary to identify and utilize global experts in HSR design, construction and maintenance;

- Our full command of innovative construction and systems integration methods that ensure project reliability and sustainability with minimum cost;

- Our commitment to the most advanced OCS, TPSS, signaling and communications technology available to ensure safe and reliable train operations;

- Our excellent relations with all key rolling stock manufacturers and rail technology OEMs in the world; and

- Our experienced legal and financing teams selected for each project. Given the complexity of this project, we have retained experienced P3 legal counsel (Clifford Chance US LLP and Pillsbury Winthrop Shaw Pittman LLP) and financial advisors (Banco Santander). The collaboration of both legal and financial advisors will help engineer the most efficient financing approach, so as to minimize the overall bid price submitted to the Authority.

Isolux Corsan enjoys a successful record of delivering infrastructure projects in the United States. Recently, the Indiana Finance Authority Board signed a P3 contract with Isolux Corsan to design, build, finance, operate, and maintain Section 5 of the I-69 in Indiana, a project valued at $325 million.

We also recently finalized the design and construction of approximately 400 miles of 345 kV transmission lines and six substations as part of the Texas Competitive Renewable Energy Zones "CREZ" project utilizing a DBFOM scheme. The "CREZ" P3 project represents a total investment of $800 million. We also recently completed a P3 investment of a $90 million in a 25 MW solar farm in California.

As an EPC contractor, we have executed and are currently constructing a number of projects in the United States. Our American subsidiary's current awarded projects has a total value of more than $500 million, including wind farms, transmission lines, substations, and industrial plants.

We approach each project, big or small, with the same level of professionalism, business ethics and commitment to excellence that is the hallmark of Isolux Corsan Group. We focus company-

wide on safety, health, the environment and quality. We build long-term relationships with a firm commitment to the most advanced technologies in engineering and construction. Our high standards help us deliver efficient solutions of unmatched value to our clients.

As a P3 and EPC company, Isolux Corsan is well-placed to respond to the RFEI and is uniquely qualified to deliver an integrated solution to either of the Initial Operating Segments, given its extensive experience in civil railway construction, track, and electrification systems.

For all questions concerning this response to the RFEI, please direct all communications to:

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Chief Executive Officer
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Austin, TX 78704
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We would like to thank you for the opportunity to submit a response to your RFEI.

Sincerely,

[redacted]

Federico Avila
Chief Executive Officer
Isolux Corsan, LLC

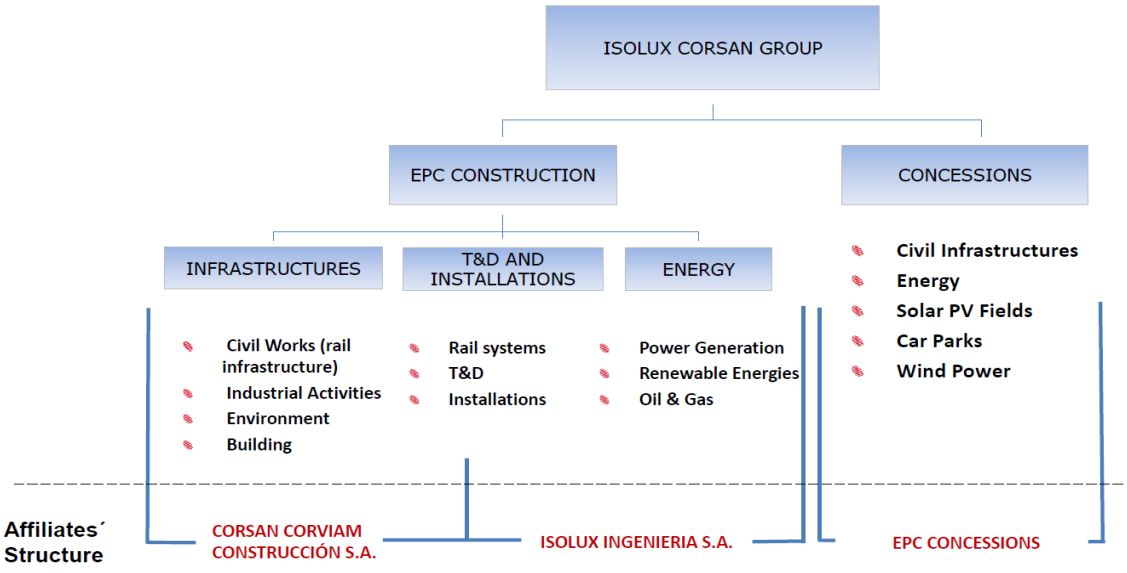
# 3. FIRM'S EXPERIENCE AND TEAM STRUCTURE

## 3.1 Isolux Corsan Group's Experience

Isolux Corsan is a technology-driven P3 and EPC group with a track record of success spanning over 80 years. We employ more than 8,500 individuals in 40 countries on four continents (including 6,000 in the EPC business). Our workforce includes skilled and motivated specialists in all rail disciplines, including civil infrastructure, TPSS and OCS design, manufacturing, and construction.

The firm has a long history of successfully implementing construction, design-build, and design-bid-build rail projects, from streetcars to HSR, including:

- Construction of 260 railway miles of double track civil works infrastructure and track works.
- Installation of more than 1,000 miles of OCS.
- Erection of more than 50 TPSS and autotransformers stations.
- Protection and SCADA remote power controls for substations and autotransformers.
- Installation of 100 miles of communication-based signaling systems.



## 3.2 Corsan's Experience

Corsan-Corviam Construccion, S.A. ("**Corsan**") is the lead company of the heavy-civil construction division of Isolux Corsan Group, with more than 80 years in operation in heavy civil construction, including horizontal and vertical construction.

Corsan has been involved in more than 35 Design-Build infrastructure projects during the last 10 years. Corsan is a high-value technical and management solutions provider for HSR projects, and has been actively engaged in every line of the Spanish HSR network. Since being awarded the first HSR contract in 1995, Corsan has built more than 30 civil HSR projects, and constructed the longest HSR viaduct of the Spanish network.

Specific examples of Corsan's experience include:

### 3.2.1 High-Speed Rail Line Madrid-Zaragoza-Barcelona-French Border

**Segment**: Sant Boi de Llobregat – Hospitalet, Barcelona, Spain

**Project Owner**: Administrador de Infraestructuras Ferroviarias ("**ADIF**")

**Start**: May, 2005; **Completion**: February, 2009

**Delivery Method**: Design-Bid-Build

**Final Project Value**: $363 million

**Description**: The construction of this project was carried out in two phases. The first phase involved burying the future conventional alignments totaling 2.7 miles in length. To do this, a deviation of the existing conventional railroad segment and construction of a temporary station were necessary. The second phase involved the construction of a new railroad segment for the HSR line totaling 2.3 miles in length. Both alignments ran almost parallel. Corsan was the sole contractor for the construction of the project. Both phases included an underground section with a cut and cover tunnel (with lengths of 0.8 miles in the conventional width segment and 2.2 miles in the HSR segment), an at-grade section (with independent rail beds for each line), a viaduct section of around 695 feet, and a final at-grade section. The project included the construction of two underground stations, one for the conventional width line and the other for the HSR line, with a total area of more than 2,000 sq. yd. During the

project construction, it was also necessary to build an auxiliary station in order to redirect normal train traffic.

### 3.2.2 High-Speed Rail North-Northwest Corridor

**Segment**: Orense – Amoeiro, Galicia, Spain

**Project Owner**: ADIF

**Start**: June, 2005; **Completion**: April, 2011

**Delivery Method**: Design-Build

**Final Project Value**: $324 million

**Description**: Corsan was the sole Design-Build contractor for this four-mile double-track segment (up to the ballast) within the Spanish North-Northwest HSR corridor. Work included a 2,480-feet cast-in-places pre-stressed viaduct, with 15 columns, at heights up to 230 feet, constructed using a custom-designed Movable Scaffolding System "MSS" over the Portos River. There were two precast U-tub girder viaducts (328 and 98.5 feet in length, respectively), two grade separations, and two tunnels constructed using Sequential Excavation Method "SEM". The largest tunnel, Burata, was 2.5 miles long and included a main parallel emergency drift. The work also included lateral duct banks for telecommunication and security systems for a follow-on contractor.

### 3.2.3 High-Speed Rail Line Madrid-Barcelona-Zaragoza-French Border

**Segment**: Nudo de la Trinidad-Montcada, Spain

**Project Owner**: ADIF

**Start**: September, 2007; **Completion**: July, 2014

**Delivery Method**: Design-Bid-Build

**Final Project Value**: $204 million

**Description**: Construction works consisted of the subgrade construction of a new HSR leg of 2.95 miles in length, of which 2.45 miles comprised a

tunnel under the town of Montcada; and 1.97 miles of this tunnel were made with our own Tunnel Boring Machine.

### 3.2.4 Corsan's Other Relevant HSR Projects in Spain

| NAME OF THE PROJECT | AMOUNT ($M) | COMPLETION DATE |
|---|---|---|
| HSR Line Sant Boi the Llobregat - Hospitalet | $363 | February, 2009 |
| HSR Orense – Amoeiro | $324 | April, 2011 |
| HSR Trinidad - Motcada | $204 | July, 2014 |
| HSR Line Campomanes - Pola De Lena | $152 | November, 2011 |
| HSR Line Tolosa – Hernialde | $138 | Substantially complete |
| HSR Line El Portal | $132 | October, 2007 |
| HSR Line Porto – Miamán | $107 | Substantially complete |
| HSR Line Tunel Del Corno | $107 | Substantially complete |
| HSR Line Pinos Puente – Granada | $106 | Substantially complete |
| HSR Line La Sagrera – Nudo De La Trinidad | $99 | April, 2012 |
| HSR Line Mondragon – Bergara | $95 | Recently awarded |

### 3.2.5 Other Railway Mega-Project-First Line of the Oran Tramway, Algeria

**Project Owner**: Enterprise Métro D´Alger (E.M.A.)

**Start**: December, 2008; **Completion**: March, 2013

**Delivery Method**: Design-Build

**Final Project Value**: $651 million

**Description**: This project consisted of the design-build of an 11.6-mile tramway line with a double track over concrete slab platform, with an average width of 23 feet. The project scope included civil works, electrical and mechanical transportation systems, and rolling stock supply. Corsan was the leader in the consortium and the sole contractor for the design and build and the execution of the civil works. The project included the design and construction of 32 stations, four interchange stations, one main depot with a total area of 75,500 sq.yd. and one auxiliary depot with a total area of 13,500 sq.yd. It also included the design and construction of three major structures: "Hai Sabah" and "Troisiéme Périphérique" viaducts measuring 496 feet and 758 feet, respectively, in height and the "Trémie des Castors" underpass with a total length of 566 feet. The main construction works were executed in a highly urbanized area and required a plan for diverting and managing traffic.

The project included the design and build of electrification and communication systems consisting of an OCS catenary, traction power substations, communications, and signaling systems.

Catenary overhead line using a contact wire with a 150 $mm^2$ cross-section suspended by means of cantileverd arms along the 11.62 miles of double track and the main depot of Sidi Maarouf. Eleven 30 kV/750 Vdc traction substations were installed. Additional systems include ticketing, communications, Centralized Command Post (PCC), Centralized Technical Monitoring (GTC), Radio Communication, Traffic Light Systems (SLT), SAE and SAEIV Operational Support and user information systems, and SIG-F Railway Signaling.

## 3.3 Isolux Ingeniería's Experience

Isolux Ingeniería S.A. ("**Isolux Ingeniería**") is the lead company of the operation and service division of Isolux Corsan Group, involved in the energy, railway, road installations, communications, electrical transmission and distribution ("**T&D**") sectors.

Isolux Ingeniería is one of the world's leading builders of T&D projects having participated in the construction of more than 12,000 kilometers worldwide. It is also a leading company in the construction of power plants, and thermal power plants and one of the largest EPC builders in renewable energy projects.

Isolux Ingeniería also provides electrical, mechanical and special installations of railway electrification and signals, deploys and maintains electrical and telecommunications networks, and provides and installs security and control systems.

Our experience includes several HSR projects that focused on electrification, signaling, security and communications systems, including:

### 3.3.1 HSR Project of Electrification Substations, Project SAVE

**Project Owner**: ADIF

**Project Completion**: December, 2004

**Delivery Method**: Design-Build

**Final Project Value**: $153.3 million

**Description**: This Design-Build project was for the construction, installation, maintenance, testing, and commissioning of eight 25 kV high-speed traction power substations and 34 25 kV autotransformer centers. The project included the following:

- 12 Transformers, 60 MVA 400/27.5-27.5 kV;
- 8 Transformers, 60 MVA 230/27.5-27.5 kV;
- 96 Autotransformers, 15 MVA 55/27.5 kV;
- 16 Auxiliary Services Transformers, 250 kVA 27.5/0.23 kV; and
- 82 Auxiliary Services Transformers, 100 kVA 27.5/0.23 kV.

### 3.3.2 HSR Project of Overhead Contact Electrification, Project INECAT

**Project Owner**: ADIF

**Project Completion**: June, 2010

**Delivery Method**: Design-Bid-Build

**Final Project Value**: $103 million

**Description:** This Design-Bid-Build project was for the construction, installation, maintenance, testing, and commissioning of 173 miles of 2 × 25 kV OCS, including OCS foundations, poles, low-profile aluminum cantilevers, 150 $mm^2$ CuMg conductor, and 392 miles of positive and negative feeder and return cables.

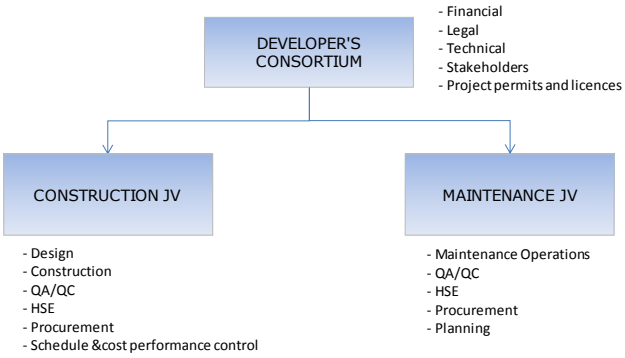
### 3.3.3 Isolux Ingeniería's Other Relevant HSR Electrification Projects

| NAME OF THE PROJECT | AMOUNT ($M) | COMPLETION DATE |
|---|---|---|
| HSR Electrification - TPSS | $153 | December, 2004 |
| HSR Overhead Catenary System - OCS | $103 | June, 2010 |
| HSR Electrification - TPSS | $123 | November 2010 |
| HSR Electrification - TPSS | $111 | March, 2011 |
| HSR Electrification - TPSS | $83 | November, 2007 |
| HSR Overhead Catenary System - OCS | $74 | December, 2010 |

## 3.4 Team Structure

Given the magnitude of the project, we would likely participate as part of a larger consortium (the "**Developer's Consortium**") of companies to provide the scope of work finally selected by the Authority.

Assuming that the Developer's Consortium in which Isolux Corsan will participate, is awarded a contract to design, construct, finance and maintain any of the Initial Operating Segments or any other relevant segment as provided herein, we envisage that the Developer's Consortium would be comprised of the members of the corresponding Construction Joint Venture ("**Construction JV**") and Maintenance Joint Venture ("**Maintenance JV**") according to their overall business participation. In addition, given the magnitude of the project, we might include one or several financial/equity investors. Nonetheless, the Developer's Consortium would be the entity responsible for delivering and financing the project, according to the contract with the Authority.




Furthermore, in addition to the contract with the Authority and relevant financing agreements, the Developer's Consortium would sign two main project agreements: (i) the EPC Contract (with the Construction JV); and (ii) the Maintenance Contract (with the Maintenance JV). These contracts would reflect, where appropriate, back-to-back obligations in respect of the P3 contract, with a standard pass-through of roles and responsibilities relevant to their scopes of works, and with standard provisions to ensure the bankability of the project.

The EPC Contract would cover all design and construction activities, including but not limited to detailed engineering, civil infrastructure, track, electrification and signaling, while the Maintenance Contract would cover all activities related to maintenance activities from the commercial operation date until the transfer date. These JVs would be comprised of different companies, according to their capabilities and specialties.

The foregoing structure is standard in P3 projects and is commonly requested by lenders and expected in capital markets transactions.

# 4. PROJECT APPROACH

## 4.1 General Approach

Isolux Corsan is very interested in collaborating either on IOS-North or IOS-South, or on a combination of both opportunities. As previously mentioned, given the magnitude of the project, we would likely participate as part of a larger consortium of companies. Should the Authority decide to develop either of the Initial Operating Segments, we would be pleased to be part of either of them, although participating in a consortium for IOS-South is especially interesting to us, given its complexity and considerable challenges.

In our opinion, the best way of improving the delivery strategy is to structure the composition of the development team for each scope of work in accordance with the standard structure referred to under Section 3.4 (*Team Structure*) above. This structure would allow each member of the Developer's Consortium to participate in accordance with the required scope of work and in alignment with its own core competencies.

With respect to the communications and signaling systems, we would have to collaborate with specialized technology companies outside Isolux Corsan Group, which would be members of the Developer's Consortium, in order to create the necessary expertise to deliver the project.

## 4.2 Innovative Ideas for Delivering the Project(s)[2]

Isolux Corsan understands that the Authority is considering the procurement of either IOS-North or IOS-South, or a combination of both Initial Operating Segments. For the purposes of response, Isolux Corsan considers that a possible innovative idea for delivering either of the projects would be to divide them into smaller and more manageable stretches. As described through the document, this "section" approach would, among other benefits, enhance competition, lower construction costs, and reduce the delivery time of the project. Additionally this approach would increase the project's profitability, promote the technical and financial feasibility of the project and allow the Authority to achieve a proper risk allocation, while also sharing the risk with appropriate levels to all Developers. In such case, the Authority could enter into different P3 contracts, one per "section" with different Developers.

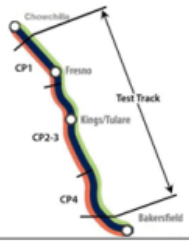
We outline below the construction "section" approach referred to above and the three possible alternatives that the Authority might have in order to implement the project(s), if the Authority

[2] *For additional understanding with respect to Isolux's innovative idea, please see Section 5.1 (Commercial Questions), Question 4 item (b).*

considers that this "section" approach is the most efficient method to develop the project(s). Notwithstanding that we consider that such approach adds delivery value, we would be pleased to discuss other alternatives that we have successfully implemented in other jurisdictions for the design, construction and maintenance of HRS projects.

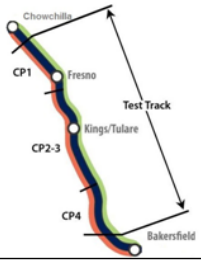
### 4.2.1 Delivery of IOS-N and IOS-S through 3 Sections Approach / 3 DBFM Contracts

**SAN JOSE – BURBANK**

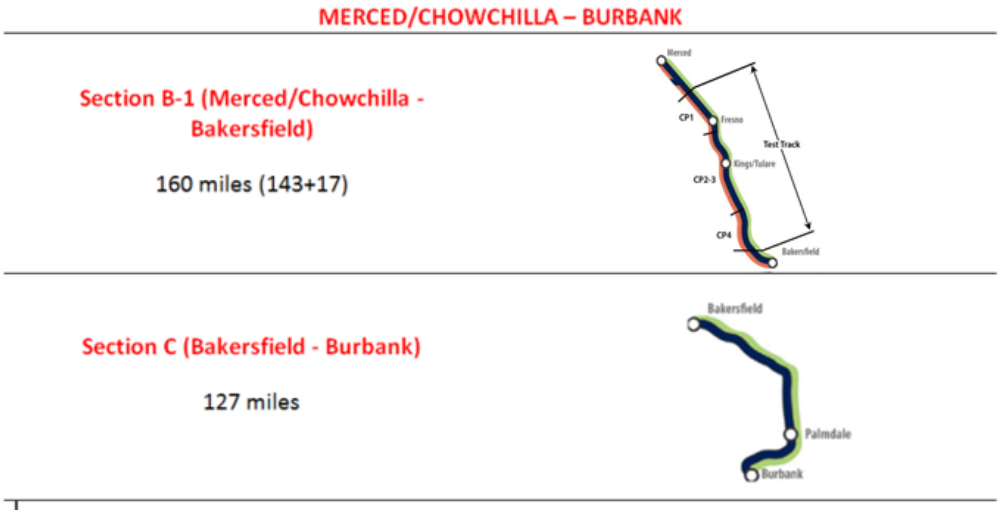
| | |
|---|---|
| Section A (San Jose - Merced)<br>119 miles |  |
| Section B (Chowchilla - Bakersfield)<br>143 miles |  |
| Section C (Bakersfield - Burbank)<br>127 miles |  |

### 4.2.2 Delivery of IOS-North through 2 Sections Approach / 2 DBFM Contracts

**SAN JOSE – BAKERSFIELD**

| | |
|---|---|
| Section A (San Jose - Merced)<br>119 miles |  |
| Section B (Chowchilla - Bakersfield)<br>143 miles |  |

### 4.2.3 Delivery of IOS-South through 2 Sections Approach / 2 DBFM Contracts




In this alternative 4.2.3, it is necessary to add to Section B a stretch of 17 miles between Chowchilla and Merced to assure the connection between population centers.

Should the Authority decide to develop the project(s) in terms of the approaches referred to in Section 4.2.1 or 4.2.2, we suggest that the delivery method address the possibility that Section A might experience delays that could affect the operation of Sections B and C (to the extent Section C is developed in terms of Section 4.2.1) regarding the connection to Merced through Chowchilla. In order to assure an appropriate connection between important population centers, we suggest that the Authority grants, priority to the Merced-Chowchilla subsection, in order to minimize such possible risk and guarantee the ridership potential of Sections B and C (to the extent Section C is developed in terms of Section 4.2.1).

Developing the selected IOS project in this manner, and using the financing structure referred to in Section 5.2 (*Funding and Financial Questions*), would allow for two or three DBFM contracts with different Developers of an appropriate scope and size. This division would attract more Developers to compete, and would likely reduce the final cost of the project due to enhanced competition.

Another alternative proposal would be to carve out the maintenance activity for the entire alignment into a separate contract, with the procurement targeting companies specializing in maintenance activities.

Electrification should commence at the same time that the civil infrastructure becomes available at the relevant electric substations. The OCS, signaling and communications, and security should be completed when the civil infrastructure is installed in each segment.

Each of the sections (assuming the project is divided into sections) should have an individual management structure, resources, and control, which would comply with international corporate governance standards and guidelines to be issued by the relevant Developer Consortium's Board of Directors.

The organizational principles stated in 3.4 would apply for each section contract.

# 5. QUESTIONS

## 5.1 Commercial Questions

**QUESTION 1.** *Is the delivery strategy (i.e., combining civil works, track, traction power, and infrastructure) likely to yield innovation that will minimize whole-life costs and accelerate schedule? If so, please describe how. If not, please recommend changes to the delivery strategy and describe how those changes will better maximize innovation and minimize whole-life costs and schedule.*

Yes, using an integrated delivery strategy combining the entire scope of work would allow:

(i) the Authority and the awarded consortium to optimize and reduce the timing of the project schedule;

(ii) the Authority to minimize the bidding period, since it would not have to organize and assess different bids for different tasks, and just a limited number of bids; and

(iii) the awarded consortium to organize its scope of work to be able to minimize the whole-life costs concurrently.

The integrated delivery strategy would let the Developer manage the integration of every stage of its work in a highly efficient manner.

The integrated delivery strategy would also mitigate the possible risk of interferences between different tasks of the project, resulting in a significant reduction of whole-life costs and schedule. This result is achieved when the Developer has control of every task associated with the works and the opportunity to modify or solve problems rapidly, while taking into account the Authority's input.

The best approach to this type of project is to evaluate the whole lifecycle of the assets, including, among others, "design for maintenance" and sustainable development. This evaluation should be done at an early stage and should be led by the Authority. The best way to

get the optimal "value for money" is to evaluate the construction costs and maintenance/renewal costs and define detailed technical specifications that would be mandatory for all participants. Only through technical specifications defined in this way, the Authority would be able to secure the best returns for its total investment.

**QUESTION 2**. *Does the delivery strategy adequately transfer the integration and interface risks associated with delivering and operating a high-speed rail system? What are the key risks that will be borne by the State if such risk transfer is not affected? What are the key risks that are most appropriate to transfer to the private sector?*

The sharing of risks between the Authority and the Developer must be well balanced in order to achieve optimal execution.

Effectively, the proposed integrated delivery strategy would mitigate the possible integration and interface risks between different tasks of the project and consequently result in lower risk to the Authority.

The key risks and tasks that should be borne by the Authority would be:

- Development of the preliminary design, and securing of environmental approvals and any environmental Records of Decision;
- Acquisition of the right-of-way and any temporary access or staging area rights;
- Negotiations with the counties, cities, towns and other government entities to be led and agreed by the Authority, before launching the DBFM process;
- Investigation, disclosure and assumption of the geotechnical risk (if the geotechnical risk is to be transferred to the private sector, it would require contingencies in the bids that would increase the total amount of the budget);
- Risk associated with major utilities risk;
- Providing a financing regime with stable and secure sources of funds acceptable to the market;
- Procurement of a fully capable train operator; and
- Supply and integrate systems equipment in the rolling stock.

The key risks that are most appropriate to transfer to the private sector would be:

- Design risk;

- Risks associated with minor utilities risk;
- Construction risk (not including the geotechnical risk);
- Financing risk (including developing an acceptable structure and providing sources of funds); and
- Maintenance risk (subject to the train operator's performance of its specified duties).

**QUESTION 3.** *Are there any other components of a high-speed rail system that should be included in the scope of work for each project (e.g., rolling stock, train operations, stations)? If so, how will this help meet the Authority's objectives as stated in this RFEI?*

The design and construction of the stations could be included within the scope of each contract. This would allow the Authority to (i) reduce the prospective interfaces and integration risks and (ii) transfer such risks to the Developer. Other possibility will be maintaining the design and build of the stations as a separate contract. This would enhance competition in the industry, opening to more companies the possibility to bid for, and would maintain the main IOS contracts in acceptable sharing of risk levels.

In addition to the studies to be performed by the Authority (see Question 2) and before the issuance of the Notice to Proceed, we would suggest that the Authority perform or complete a Traffic-Passenger Study, in order to assess the size and dimensions of each station.

**QUESTION 4.** *What is the appropriate contract term for the potential DBFM contract? Will extending or reducing the contract term allow for more appropriate sharing of risk with the private sector? If the Respondent recommends a different delivery model, what would be the appropriate term for that/those contract(s)?*

**(a) Authority's Approach (either IOS-North or IOS-South).**

Assuming that the Authority does not follow the "section" approach as suggested in Section 4.2 (*Innovative Ideas for Delivering the Project(s)*), we estimate that the appropriate term for each DBFM contract (either IOS-North or IOS-South) should be:

- **Design:** 2 years from notice to proceed regarding design activities
- **Construction**: 6 years from notice to proceed regarding construction activities

- **Maintenance:** 25 years from construction completion[3]
- Design and Construction would be overlapped in a fast-track mode

Extending the contract term will allow the Authority to share the risk more appropriately with the private sector. Also, external risks which are not in the hands of the Developer and which are a common cause of delays, such as performance by major utilities, could be mitigated by extending the contract terms.

For example, works on high voltage lines can sometimes only be done at off-peak hours. Such timing issues, which are not in hands of the Developer's schedule, could significantly impact the project.

**(b) Isolux Corsan's Approach.**

If the project was divided into sections as referred to under Section 4.2 (*Innovative Ideas for Delivering the Project(s)*), we the estimate that the appropriate term for each DBFM contract (for each Section) should be:

(i) **Delivery of IOS-N and IOS-S through 3 Sections Approach / 3 DBFM Contracts**

- Section A (San Jose to Merced)

  **Design:** 2 years from Notice to Proceed regarding design activities

  **Construction:** 5 years from Notice to Proceed regarding construction activities

  **Maintenance:** 25 years from construction completion

- Section B (Chowchilla to Bakersfield)

  **Design**: 2 years from Notice to Proceed regarding design activities

  **Construction:** 2-3 years from Notice to Proceed regarding construction activities

  **Maintenance:** 25 years from construction completion

- Section C (Bakersfield to Burbank)

  **Design:** 2 years from Notice to Proceed regarding design activities

[3] *According to the availability of C&T Program, the maintenance contract term would be extended to 2050. This would apply to all the maintenance terms in the following two pages.*

**Construction:** 5 years from Notice to Proceed regarding construction activities

**Maintenance:** 25 years from construction completion

Design and Construction would be overlapped in a fast-track mode

(ii) **Delivery of IOS-North through 2 Sections Approach / 2 DBFM Contracts**

- Section A (San Jose to Merced)

**Design:** 2 years from Notice to Proceed regarding design activities

**Construction:** 5 years from Notice to Proceed regarding construction activities

**Maintenance:** 25 years from construction completion

- Section B (Chowchilla to Bakersfield)

**Design:** 2 years from Notice to Proceed in design activities

**Construction:** 2-3 years from Notice to Proceed in construction activities

**Maintenance:** 25 years from construction completion

Design and Construction would be overlapped in a fast-track mode

(iii) **Delivery of IOS-South through 2 Sections Approach / 2 DBFM Contracts**

- Section B-1 (Merced/Chowchilla to Bakersfield)

**Design:** 2 years from Notice to Proceed in design activities.

**Construction:** 2-3 years from Notice to Proceed in construction activities.

**Maintenance:** 25 years from construction completion.

- Section C (Bakersfield to Burbank)

**Design:** 2 years from Notice to Proceed regarding design activities.

**Construction:** 5 years from Notice to Proceed regarding construction activities.

**Maintenance:** 25 years from construction completion.

Design and Construction would be overlapped in a fast-track mode.

Splitting the whole alignment into two or three separate contracts would allow (i) the Developer to comply with the corresponding construction scheduled due dates and (ii) the Authority to reduce contract durations. Other ways to enhance the project schedule are potentially available.

In this case, the performance would be done in a fast-track mode and following technical specifications for civil and subgrade works already implemented in the CP-1 to CP-4 stretches.

**QUESTION 5**. *What is the appropriate contract size for this type of contract? What are the advantages and disadvantages of procuring a contract of this size and magnitude? Do you think that both Project scopes should be combined into a single DBFM contract?*

We agree with California Business Plan's estimations regarding contract amount, although we anticipate we could achieve savings by optimizing the technical and financial structure, as stated herein. In this regard, we preliminarily estimate that if the project is divided into sections as referred above, the Authority could achieve an approximate 5% reduction of total costs, compared with the Business Plan's estimation for the IOS-South and IOS-North combination.

If the project is divided into sections as mentioned above, the contract size (for each separate section) would be more attractive to the market. We believe each contract could be awarded by the Authority at a lower price due to the greater interest generated among qualified bidders.

Possible advantages of awarding contracts according to the Authority initial IOS South or IOS North or a combination of sections A&B or B&C include:

- Improvement of the interfaces and integration of the works; and
- Speeding up of the delivery process.

The Authority's proposal of including systems in the DBFM contracts allows the Developer to manage and integrate in the best way the possible interfaces that may occur between contractors and technology companies.

Based on our experience, we consider that the entire alignment should not be combined into a single DBFM contract, taking into consideration the overall amount of a possible single contract. A single contract of this size is not common in the international HSR market and a mega-consortium would need to be formed to conduct a project of such scale. Very few private companies in the world could afford a project of this magnitude. Private companies normally prefer smaller contracts and more manageable consortiums. In that sense, smaller contracts would likely generate more competition, to the ultimate benefit of the Authority.

**QUESTION 6.** *Does the scope of work for each project expand or limit the teaming capabilities? Does it increase or reduce competition?*

In our view, splitting the scope of work into different sections will expand the number of bidders, given that it would allow the project to be more attractive, from a technical and investment perspective, to a wider number of companies. Subsequently, competition would increase, the Authority will receive more proposals and therefore the Authority will benefit from a more diversified investor spectrum and their alternative solutions.

From a financial point of view, and in general terms, expanding the teaming capabilities will result, as previously explained, in more diversified bidders and stronger consortiums. Increasing their access to financial institutions, will improve the perception of credit quality and provide comfort on risks mitigation. This would imply a higher level of competitiveness in the process from the financing perspective, not only in terms of financing conditions but also in a more efficient financing structure.

Dividing the IOS-North and IOS-South into different sections as we have proposed above would increase competitiveness, and the reduction in terms of investment amount would facilitate project financing. In general, and consistent with our experience on large-scale projects financing, banks are quite restrictive with their maximum "hold" on a single project. Increasing the number of potential lenders and access to a wide range of liquidity pools (Project Finance Lenders, Project Bonds, Export Credit Agencies, Multilateral Agencies, etc…) will be key in order to obtain the necessary funding for projects of this scale. Dividing the project and downsizing the investment amount by segmenting the project, would facilitate financing by increasing the final number of financial institutions to be involved in the deal and allow the participation of financial institutions with lower final hold positions. Also, and considering the cost, scale and tenure of the project, the financing entities will benefit from risk and counterparty exposure diversification if the Authority agree on splitting the IOS-North and IOS-South into different sections.

## 5.2 Funding and Financial Questions

**QUESTION 7.** *Given the delivery approach and available funding sources, do you foresee any issues with raising the necessary financing to fund the IOS-South project scope? IOS-North project scope? Both? What are the limiting factors to the amount of financing that could be raised?*

The RFEI indicates that C&T Proceeds are intended as a major source of the availability payments. Financing parties will need to assess whether the sources of funds identified by the Authority are stable and sufficient. For example, are the C&T Proceeds sufficient and are they subject to being redirected for a different purpose by future government actions?

Among the limiting factors to the amount of financing that can be raised is the credit supporting the Authority's obligations. Developers and their financers will assess whether the sources of funds carry the full faith and credit of the State of California, or otherwise are equivalent to general obligations of the State. If not, the absolute size of the funding sources absolutely and irrevocably committed to the Authority may limit the amount of financing available.

Given the investment volume of the proposed project and the funding needs associated therewith, clear identification of which entity (e.g. the Authority) will be the obligor of all payments and confirmation that such obligations are backed by adequate credit would be needed.

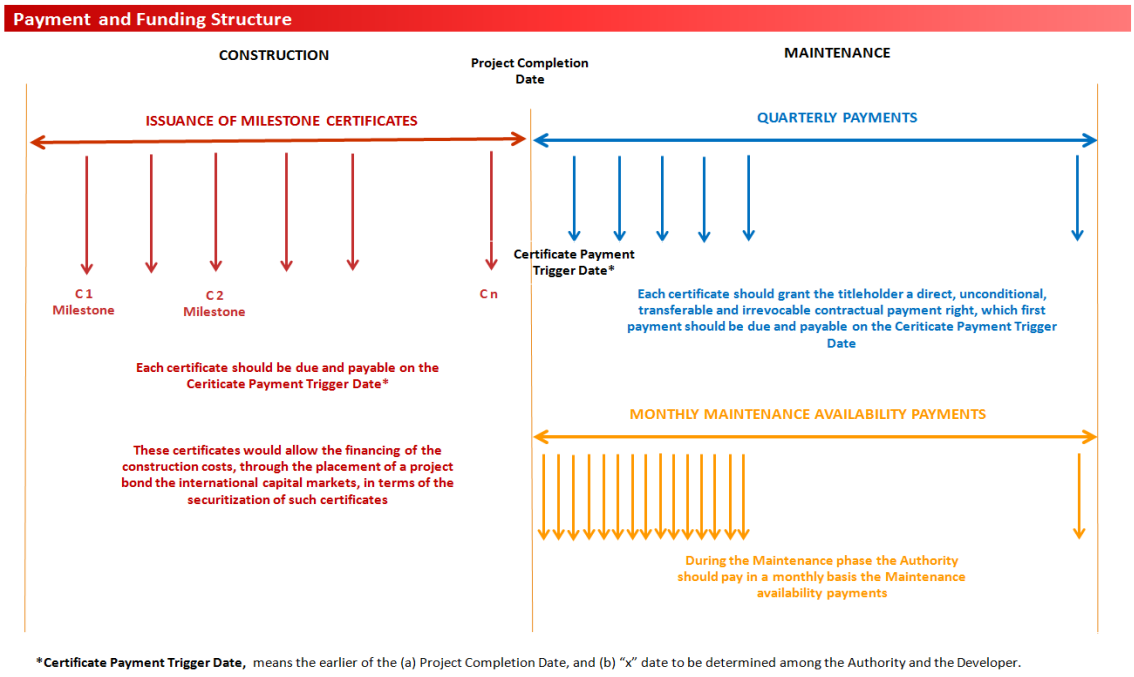
All available liquidity sources will need to be explored by Isolux Corsan in order to secure funding on a competitive basis. Therefore, we will need to understand whether the project is eligible for Federal grants or credit assistance in the form of direct loans (e.g. TIFIA or successor programs), whether the project is suitable for issuance of tax-exempt bonds; and whether a remuneration scheme (see Question 8 below) can be implemented that attracts long-term funding from both banks and institutional investors.

**QUESTION 8.** *What changes, if any, would you recommend be made to the existing funding sources? What impact would these changes have on raising financing?*

Ensuring that the Authority's payment obligations have a strong level of assurance, such as carrying the full faith and credit of the State of California, would simplify analysis of the specific funding sources. This assurance would enable the developers to raise more financing at lower costs; these savings would presumably be reflected in lower bids to the Authority.

Our financial and legal advisors have participated in the structuring and financing of transportation projects through securitization of a stream of assured payments. This requires developing certificates or other instruments that constitute irrevocable and unconditional obligations of payment starting at a specific date (which such payment usually commencing during the operation and maintenance period) and paid on a sequential basis (i.e. quarterly or semiannual) for a designated period of time (i.e. from 10 to 30 years), but which are actually issued at achievement of milestone events during construction. Such a structure would enable the Authority to repurpose its plan to use "milestone payments from funds provided by Proposition 1A to help fund a portion of the capital costs" (Section 10.1 of the RFEI) for a period of time. However, more investigation and discussions would be needed as to whether the Authority could issue the types of certificates required for the envisaged securitization financing. The benefit of this form of financing during construction is that it would "front end" financing costs and perhaps reduce the amount that would otherwise need to be recouped by

means of availability payments during operation. As noted above, it would also provide a "multiplication" effect, such that the Authority could support more capital expenses with the same funds.




***Certificate Payment Trigger Date,** means the earlier of the (a) Project Completion Date, and (b) "x" date to be determined among the Authority and the Developer.

This capital market solution creates a robust structure and an alignment of interests between different stakeholders, with debt repayments secured by certificates earned alongside achieving certain milestones during construction and providing the certificate holders with the assurance that the end credit risk on such investment would be the Authority. In order to allow for future securitization of such irrevocable and unconditional payment certificates or other instruments, it is also important to secure their transferability, in order to monetize them through the potential transfer or sale of such certificates to an investment vehicle, through a securitization scheme.

During construction, and since the issuance of the aforementioned certificates would be done on a quarterly or semi-annual basis as the Developer's Consortium accomplishes construction works, the financing structure would require a revolver credit facility to finance construction costs between the issuance of two certificates. The tenor of the facility would be the construction period and it would be sized taking into consideration the maximum volume of accumulated construction investment for a quarter or semiannual period. Once a certificate is issued, the proceeds of the project bond (as securitized to such certificates) would be used to repay the revolver facility.

The foregoing structure would allow the Authority to link availability payments to the maintenance of the segment. Those payments would of course be subject to adjustments for non-performance or substandard performance, according to pre-defined criteria.

In addition to providing transparency on the provisions for the payment amounts related to the project, the Authority should provide assurance of additional amounts to cover inflation adjustments, relief event payments over the life of the contract, and payment obligations in case of termination events.

Based on our proposed financing structure for the project, we conducted a preliminary analysis to study whether the funds committed in principle by the authority are sufficient to undertake the project (s). This analysis has been made taking into account the following key assumptions:

- DBFM Project Cost (other costs are not included)
- Contract period: 34 years (2016 - 2050)
- Financing structure based on 2 facilities:
    - Revolver Construction Financing:
        - Target: financing construction works advance between the issuance of 2 certificates
        - Term: construction period 5 years
        - Indicative all in price: 4.75%
    - Bond Issuance:
        - Target: Long term financing of the project. Bondholders will provide funds to purchase the certificates to the Developer and will be repaid through the annual payments from the Authority
        - Annual payments must be unconditional and irrevocable payments, budgeted and guaranteed by a creditworthy entity or agency (e.i. State of California)
        - Term: 34 years (contract period)
        - Bond Coupon: 4.50% (Pricing considering California Bonds with similar maturity and market standard spreads)

Please find below 3 tables that show the main conclusions of the preliminary analysis:

| IOS North | |
|---|---|
| Project Cost (DBFM Cost only considered) | 19,510,000 [$000] |
| Direct financing during construction (Proposition 1A + C&T during construction) | 6,600,000 [$000] |
| **Cost to be financed by Annual Payments** | **12,910,000 [$000]** |
| **Annual Payment** | **1,030,803 [$000]/ year** |
| Payment Period (2021 - 2050) | 29 years |
| **Funds for Annual Payments** | |
| C&T (up to 2050) | 500,000 [$000]/ year |
| Gap to be covered by CF from Operations & Other sources | **530,803 [$000]/ year** |

| IOS South | |
|---|---|
| Project Cost (DBFM Cost only considered) | 21,630,000 [$000] |
| Direct financing during construction (Proposition 1A + C&T during construction) | 6,600,000 [$000] |
| **Cost to be financed by Annual Payments** | **15,030,000 [$000]** |
| **Annual Payment** | **1,200,083 [$000]/ year** |
| Payment Period (2021 - 2050) | 29 years |
| **Funds for Annual Payments** | |
| C&T (up to 2050) | 500,000 [$000]/ year |
| Gap to be covered by CF from Operations & Other sources | **700,083 [$000]/ year** |

| Both IOS | |
|---|---|
| Project Cost (DBFM Cost only considered) | 36,740,000 [$000] |
| Direct financing during construction (Proposition 1A + C&T during construction) | 6,600,000 [$000] |
| **Cost to be financed by Annual Payments** | **30,140,000 [$000]** |
| **Annual Payment** | **2,406,408 [$000]/ year** |
| Payment Period (2021 - 2050) | 29 years |
| **Funds for Annual Payments** | |
| C&T (up to 2050) | 500,000 [$000]/ year |
| Gap to be covered by CF from Operations & Other sources | **1,906,376 [$000]/ year** |

Subject to further analysis, it seems that the Authority will count with the cash flow from operations to close the gap between the C&T Program funds and the Annual Payment amount. In this sense, the 2014 Business Plan shows a very positive cash flow from operations that should cover the majority of this gap, especially after passing the ramp up period of the HSR.

**QUESTION 9.** *Given the delivery approach and available funding sources, is an availability payment mechanism appropriate? Could financing be raised based on future revenue and ridership (i.e., a revenue concession)? Would a revenue concession delivery strategy better achieve the Authority's objectives?*

First, we do not believe that financing based entirely on "future revenue and ridership (i.e. a revenue concession)" would be suitable for the proposed project. Even in toll road and bridge P3 projects of lesser scale, usage forecasts have proven to be woefully inaccurate. Here, where there is less historical evidence of consumer response to the transportation mode shift

envisioned, it would be difficult to have confidence in ridership predictions that would enable developers to model revenue and take the associated risks.

It is instructive that international precedents on procuring rail and high-speed rail infrastructure under P3 structures have generally used direct government financing as the source of funds for debt and capital repayment/remuneration. The form by which such governments and public agencies have provided funding on revenue schemes varies across markets and jurisdictions (e.g., milestone payments, payment certificates, deferred payments, and availability payments). However, access to local and international financing based on pure concession revenues would be difficult for projects with characteristics such as the IOS-North and/or the IOS-South. Future revenue and ridership could be an additional component of the revenue structure available for the project, but potential financing parties would not consider them as a secure source for debt repayment. Such revenue and ridership proceeds might serve as a potential source for reserves, to cover operation costs, or to partially fund future capital expenses.

As envisioned by the Authority, availability payments should, be considered as part of the financing solution for this project, as such payments have been used both domestically and internationally to finance government infrastructure projects. While availability payments are typically understood to be subject to appropriation risk, lenders have in past projects accepted such risk in connection with projects that are deemed "essential", such as the HSR. As described in Question 8, we would also encourage the Authority to explore and analyze the financial benefits regarding the issuance of certificates of assured future payments as a financing alternative during construction.

## 5.3 Technical Questions.

**QUESTION 10.** *Based on the Authority's capital, operating, and lifecycle costs from its 2014 Business Plan, describe how the preferred delivery model could reduce costs, schedule, or both. Please provide examples, where possible, of analogous projects and their cost and/or schedule savings from such delivery models.*

The delivery model adopted for the project could reduce costs, since it assigns to a Consortium the control of almost every issue related to the works in its assigned section. Consequently, the expected private sector profit does not have to be distributed to different parties, which would increase the budget amount. This model also transfers the risk of managing interfaces between different tasks, permitting the Developer to be more effective in solving those matters. However, due to the size of the project, very few consortiums are likely to compete, which may increase costs.

In addition, the whole lifecycle cost allows the Authority to get the best value for its money. This approach has been adopted with success in all concessions where Isolux Corsan Group has been involved. The following projects are examples:

**(a) Road Concessions: 1,065 miles of motorways in India, Brazil, Mexico, Spain and USA:**

- India - NH1 Panipat-Jalandhar (181 miles)
- India - NH2 Varanasi-Aurangabad (120 miles)
- India - NH6 Gujarat-Maharashtra Border-Surat-Hazira Port (83 miles)
- India - NH8 Kishangarh-Ajmer-Beawar (58 miles)
- Mexico - Saltillo-Monterrey and Saltillo Norte (59 miles)
- Mexico - Perote-Banderilla and Xalapa bypass (37 miles)
- Spain - A4 Madrid-Ocaña (42 miles)
- Spain - AP-41 Madrid-Toledo (41 miles)
- Brazil - BR 116/BA - BR 324/BA - BA526 - BA 528 (423 miles)
- USA - I-69 Section 5 Highway (21 miles)

**(b) Transmission Line Concessions: 3,400 miles of transmission lines in Brazil, India and USA.**

**QUESTION 11.** *How does this compare to separately procuring each high-speed rail component (i.e., separate contracts for civil works, rail systems, power separately)? Please discuss design/construction costs, operating/maintenance/lifecycle costs, and schedule implications.*

**(a) Design/Construction Costs.**

This would permit specialized companies to bear liability only for their specific scope of work. Such separate liability resolves a common obstacle when forming a huge consortium. This would result in better competition for the awarding of the project contracts, as more companies would be interested in them.

Procuring the project(s) in separate contracts, would require an additional effort in the Authority organization, and would bring some uncertainty with regard to the final cost amounts, not totally clear whether increasing or decreasing. Procuring the project in an integrated manner would pass these uncertainties and risks to the Developer, which would take internal contingencies to manage them. So it is not completely clear which way would be at the end of a lower amount. The advantage would be more likely for the Authority to have a fixed price, and also all the scheme in P3 manner would permit to finance it in the market, otherwise seems that only budgetary state or federal funds would have to be used in D&B manner.

**(b) Operating/Maintenance/Lifecycle Costs.**

Assuming the execution of separate contracts, the operating/maintenance/lifecycle costs could increase because the procurement of equipment would not create synergies with maintenance activities. In many cases, maintenance providers could supply equipment and this could reduce the maintenance costs and the overall costs, given the confidence the maintenance entity has in the equipment source.

**(c) Schedule Implications.**

The Developer would coordinate the different tasks encompassed in the contract, and then would try to reduce the duration of the construction work. The Developer's interest, once given the fixed price for the D&B part through the P3 scheme, is to minimize its costs. This can only be done by complying with the project schedule or even reducing it.

Procuring each HSR component separately would bring more possibilities of schedule extension and risk implications, as unexpected delays which may arise in one contract and would affect the following ones, with less capability for adapting, compared to when all the components and interfaces are under the scope of the Developer, according to the integrated approach.

**QUESTION 12.** *For each project, are there any technical changes to the respective scope of work that would yield cost savings and/or schedule acceleration while still achieving the Authority's objectives? If so, please describe.*

Utilities work is an important scope which is not fully addressed in the RFEI. It would be better for more efficient and proper project management if the major utilities were the Authority's responsibility. Interfaces between major utilities and project alignment would be better addressed, since the Authority is better suited to manage relations with the utilities.

We also find that the scope of work induces construction companies to subcontract systems work, as they are not commonly fully specialized in this element. This could complicate the management of systems tasks and also may cause difficulties for the Authority's supervision.

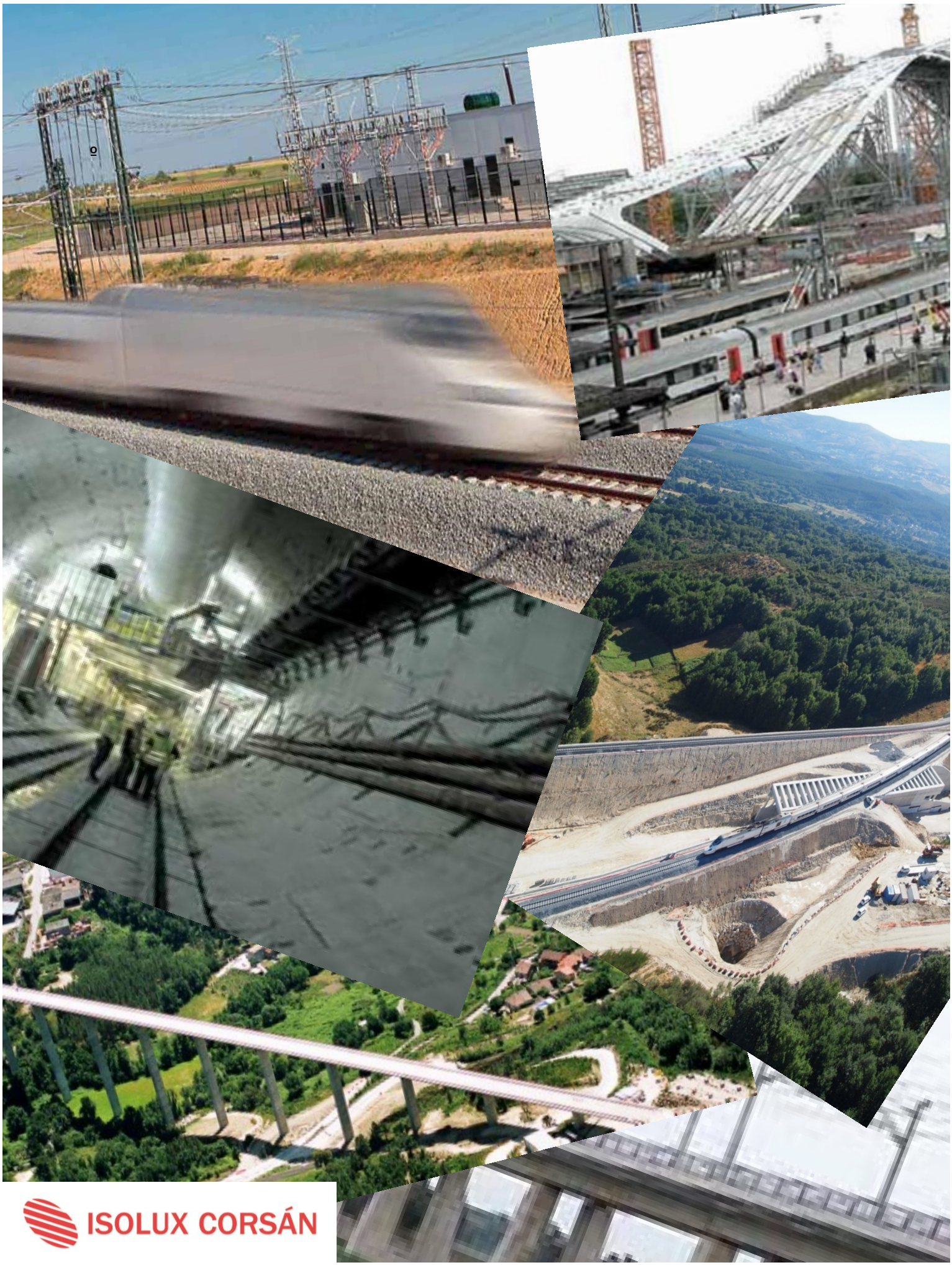
As a possible technical change and subject to a further financial analysis, it might be worthwhile to analyze the impact of dividing the scope of work into two different contracts. The first contract covering the civil works, track, and traction power (including systems infrastructure), and the second contract covering the "Systems" (according to Systems definition on the RFEI HSR #15-02 document, point 7.2.4). This way, the Authority would have direct communication with the Systems developer (and vice versa) and any system integration problems would be reduced substantially.

We also believe, as previously stated, that station construction should be included in the project, since construction companies are highly capable of performing such work.

In our view, these changes in the project's scope would yield cost savings and accelerate the schedule.

**QUESTION 9 OF DOCUMENT DATED AUGUST 11, 2015.** *Will the procurement be a two-step process consistent with previous construction procurements? What will be the technical and price weightings?*

Since the Authority is asking for feedback on the appropriate procurement structure and technical and cost weightings, considering the technical complexity of this project, we would suggest allocating 40% to the technical part and 60% to cost.



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