

TABLE OF CONTENTS

Preface	1
The assumptions used in the preliminary economic analysis	5
Required investments in each sector	6
Summary of the proposed generation projects	8
Description of the proposed generation projects	9
Summary of the proposed transmission projects	14
Description of the proposed transmission projects	15
Locations, costs and capacities of joint projects	21

P R E F A C E

The **Saudi Electricity Company (SEC)**, a Saudi Joint Stock Company, was incorporated by Royal Decree M/16, dated 6.9.1420, by merging all the power utilities and the projects of the Electricity Corporation into one entity that commenced operation at the 5th of April 2000.

The SEC objectives, as set forth in its Articles of Incorporation, include generation, transmission and distribution of electric power; purchase, sale, and provision of electric power services in the Kingdom; investment in electric power projects within and outside the Kingdom; import and export electric power across the Kingdom's borders; investment in projects for supply of fuel to its wholly or partially owned subsidiaries; and carrying out and support of research for service enhancement, power conservation, performance upgrade, environment protection and cost-reduction.

Shareholding

The total shares by end of 2003:

	No of Shares	Percentage
Saudi Government	619,235,064	74%
Private Sector	156,357,615	19%
Saudi Aramco	57,726,084	7%
Total	833,318,763	100%



2004 FACTS & FIGURES

Power & Peak Load

The energy generated by SEC plants during 2004 reached (135,812) GWH, 5.8% higher than the previous year. Energy imported from desalination plants and major customers amounted to (2,445) and (370) MW, respectively. Energy sales rose to (145,469) GWH, a 2.30% growth compared to 2003. The maximum non-coincident peak registered during the year was (27,847) MW, (1,575) MW higher than the previous year.

Available Generation Capacity

The actual generation capacity of SEC plants amounted to (27,711) MW. Desalination plants and major customers contributed (2,445) and (370) MW, respectively, at peak time. That lead the total actual generation capacity to (30,526) MW.

Customers

Energy was supplied to (244,819) new customers during the year. So the total number of customers was (4,491,717) by the end of the year. The increase is (5.8%) over the previous year.

Distribution of Customers by Consumption Category

Residential	Commercial	Governmental	Industrial	Agricultural	Total
3,700,161	577,797	155,180	6,791	51,788	4,491,717

Manpower

SEC number of employees was (29,047) employee and 80.9% of them are Saudis.

Corporate Vision

To help and improve the standards of living and enhance the economic competitiveness of the Kingdom of Saudi Arabia.

Mission Statement

"SEC is committed to provide its customers with safe and reliable electric services, to meet the expectations of its shareholders, caring for its employees, and ensuring optimum utilization of available resources".

Purposes

1. Generate, transmit and distribute electric energy in the Kingdom of Saudi Arabia, either by itself or through wholly or partially owned subsidiaries.
2. Purchase, sell, and provide electric energy services in the Kingdom of Saudi Arabia, either by itself or through its wholly or partially owned subsidiaries, against a financial rate to be charged to beneficiaries according to the established method in the Kingdom of Saudi Arabia.
3. Take part and invest in electric power generation, transmission and distribution projects within and outside the Kingdom, pursuant to the pertinent instructions of the Ministry of Industry & Electricity.
4. Import and export electric power across the Kingdom's borders according to the pertinent instructions of the Ministry of Industry & Electricity.



5. Take part and invest in projects for supply of fuel to its wholly or partially owned subsidiaries pursuant to the applicable regulations. The Company may purchase the fuel needed for its own, as well as its partially owned subsidiaries for energy power production.

6. Draw up and adopt programs and mechanisms necessary for implementing manpower development plans for training and development of its personnel.

7. Conduct and support research with a view to improving the quality of service, upgrading performance and operation efficiency, conserving power, protecting the environment, and reducing costs.

8. Prepare and publish pamphlets, newsletters, data etc related to its activities or services.

9. Extend advisory and guidance services in the areas that serve its purposes.

**In order to achieve its purposes,
the Company may:**

1. Establish or own subsidiaries engaged in electric power generation, transmission and distribution.

2. Establish other companies or associate with Saudi and foreign companies or organizations that are engaged in similar activities or may help it achieve its objectives.

3. Acquire shares or stocks in the companies referred to under "1" and "2" above.

4. Engage, for its own or others' account, in all industrial and commercial activities related to its purposes, such as sale, purchase, lease and rent of fixed and non-fixed assets.



THE ASSUMPTIONS USED IN THE PRELIMINARY ECONOMIC ANALYSIS

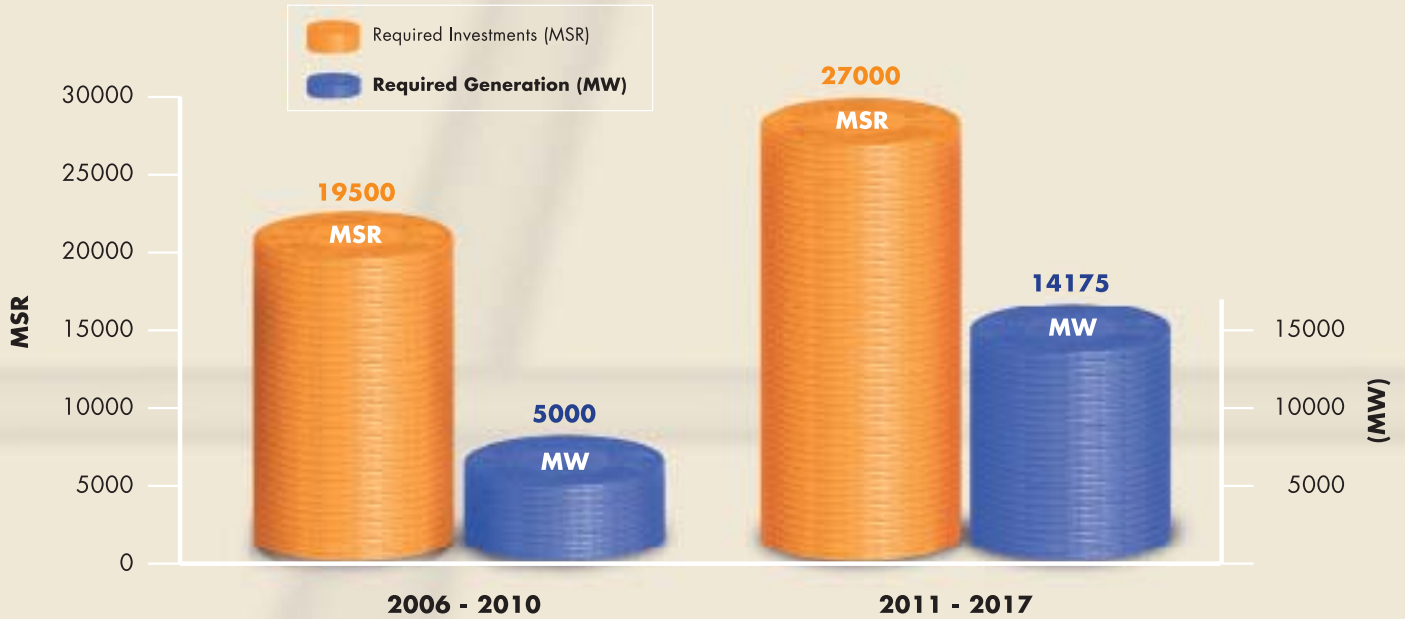
The following assumptions are used in the preliminary economic analysis of the proposed projects:

- Discount rate = 5%.
- Load factor = 85%.
- The domestic prices of fuels.
- The agreement between the company and investors is BOT type for a period of 20 years for the generation projects and 15 years for the transmission projects.
- 20% of the capital cost is funded by an equity for the return on invested equity to be around 20%.

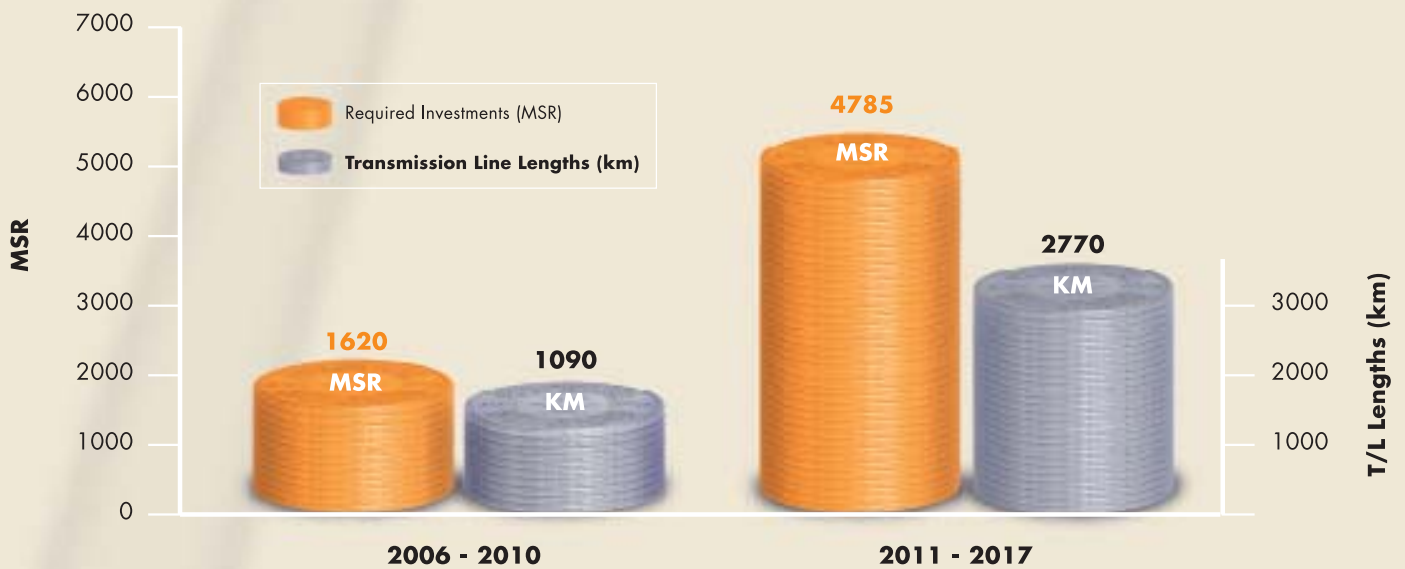
REQUIRED INVESTMENTS IN EACH SECTOR



The Required Investments in the Generation Sector



The Required Investments in the Transmission Sector



GENERATION PROJECTS





SUMMARY OF THE PROPOSED GENERATION PROJECTS



■ **Steam or CC P/P**
● **GTC P/P**

PROJECT TITLE	POWER (MW)	REQUIRED INVESTMENTS (MSR)	COMPLETION DATE	PROJECT LOCATION
Muzahimiyah P/P	1725	2800	2011	COA
Rabigh-II P/P	2400	5000	2012	WOA
Qurayyah-II P/P	3600	7200	2012	EOA
Sulbokh P/P	1725	2800	2014	COA
Yanbu-II P/P	2400	5000	2015	WOA
Shuqaiq-III P/P	600	1400	2016	SOA
Power Plant #10	1725	2800	2017	COA

DESCRIPTION OF THE PROPOSED GENERATION PROJECTS

<i>PROJECT TITLE:</i> MUZAHIMIYAH POWER PLANT	<i>COMPLETION DATE:</i> 2011
<i>ESTIMATED CAPITAL COST:</i> 2,800 MSR	<i>PROJECT LOCATION:</i> Central Operating Area
<i>DESCRIPTION OF WORK:</i> Install gas turbine generating units with net electrical output capacity of 1725 MW. The primary and backup fuels for these units are natural gas and crude oil respectively.	
<i>PRELIMINARY ECONOMIC INDICES:</i> IRR = 14.91% Pay back period = 7 years	

<i>PROJECT TITLE:</i> RABIGH-II POWER PLANT	<i>COMPLETION DATE:</i> 2012
<i>ESTIMATED CAPITAL COST:</i> 5,000 MSR	<i>PROJECT LOCATION:</i> Western Operating Area
<i>DESCRIPTION OF WORK:</i> Install generating units with net electrical output capacity of 2400 MW and total water capacity of 150 million gallons per day. The primary and backup fuels for these units are crude oil and natural gas respectively.	
<i>PRELIMINARY ECONOMIC INDICES:</i> IRR = 15.79% Pay back period = 7 years	

DESCRIPTION OF THE PROPOSED GENERATION PROJECTS

<i>PROJECT TITLE:</i> QURAYYAH-II POWER PLANT	<i>COMPLETION DATE:</i> 2012
<i>ESTIMATED CAPITAL COST:</i> 7,200 MSR	<i>PROJECT LOCATION:</i> Eastern Operating Area
<i>DESCRIPTION OF WORK:</i> Install generating units with net electrical output capacity of 3600 MW and total water capacity of 150 million gallons per day. The primary and backup fuels for these units are natural gas and crude oil respectively.	
<i>PRELIMINARY ECONOMIC INDICES:</i> IRR = 16.47% Pay back period = 7 years	

<i>PROJECT TITLE:</i> SULBOKH POWER PLANT	<i>COMPLETION DATE:</i> 2014
<i>ESTIMATED CAPITAL COST:</i> 2,800 MSR	<i>PROJECT LOCATION:</i> Central Operating Area
<i>DESCRIPTION OF WORK:</i> Install gas turbine generating units with net electrical output capacity of 1725 MW. The primary and backup fuels for these units are natural gas and crude oil respectively.	
<i>PRELIMINARY ECONOMIC INDICES:</i> IRR = 14.91% Pay back period = 7 years	

DESCRIPTION OF THE PROPOSED GENERATION PROJECTS

<i>PROJECT TITLE:</i> YANBU-II POWER PLANT	<i>COMPLETION DATE:</i> 2015
<i>ESTIMATED CAPITAL COST:</i> 5,000 MSR	<i>PROJECT LOCATION:</i> Western Operating Area
<i>DESCRIPTION OF WORK:</i> Install generating units with net electrical output capacity of 2400 MW and total water capacity of 150 million gallons per day. The primary and backup fuels for these units are crude oil and natural gas respectively.	
<i>PRELIMINARY ECONOMIC INDICES:</i> IRR = 15.79% Pay back period = 7 years	

<i>PROJECT TITLE:</i> SHUQAIQ-III POWER PLANT	<i>COMPLETION DATE:</i> 2016
<i>ESTIMATED CAPITAL COST:</i> 1,400 MSR	<i>PROJECT LOCATION:</i> Southern Operating Area
<i>DESCRIPTION OF WORK:</i> Install generating units with net electrical output capacity of 600 MW and total water capacity of 23 million gallons per day. The primary and backup fuels for these units are crude oil and natural gas respectively.	
<i>PRELIMINARY ECONOMIC INDICES:</i> IRR = 11.1% Pay back period = 9 years	

DESCRIPTION OF THE PROPOSED GENERATION PROJECTS

PROJECT TITLE:

POWER PLANT # 10

COMPLETION DATE:

2017

ESTIMATED CAPITAL COST:

2,800 MSR

PROJECT LOCATION:

Central Operating Area

DESCRIPTION OF WORK:

Install gas turbine generating units with net electrical output capacity of 1725 MW. The primary and backup fuels for these units are natural gas and crude oil respectively.

PRELIMINARY ECONOMIC INDICES:

IRR = 14.91%

Pay back period = 7 years

TRANSMISSION PROJECTS





SUMMARY OF THE PROPOSED TRANSMISSION PROJECTS



— 380 kV AC T/L ±500 kV HVDC T/L

PROJECT TITLE	VOLTAGE (kV)	LENGTH (km)	Required Investment (MSR)	COMPLETION DATE	PROJECT LOCATION
Shuqaiq-Sabya/Asir	380	110/120	330	2007	SOA
Shuqaiq-Muhayil/Namera	380	130/145	420	2008	SOA
Shoaiba-Namera	380	270	400	2010	SOA
Hail-Al-Jouf	380	315	470	2010	EOA
Hawiyah-Muzahimiyah	380	300	440	2011	EOA/COA
Qassim-Madinah	±500	480	2000	2012	COA/WOA
Yanbu-Dhuba	380	430	570	2013	WOA
Qaisumah-Rafha	380	280	415	2014	EOA
Muzahimiyah-Bahra	±500	950	2500	2013	COA/WOA
Tabuk-Al-Jouf	380	330	480	2014	EOA/WOA

DESCRIPTION OF THE PROPOSED TRANSMISSION PROJECTS

PROJECT TITLE: Southern Region 380 kV INTERCONNECTION LINES	COMPLETION DATE: 2007
ESTIMATED CAPITAL COST: 330 MSR	PROJECT LOCATION: Southern Operating Area
<p>DESCRIPTION OF WORK:</p> <p>Based on SEC Engineering Standard, construct the following 380 kV double circuit overhead transmission lines:</p> <ol style="list-style-type: none"> 1. Approximately 110 km long connecting Shuqaiq P/P to Sabya S/S. 2. Approximately 120 km long connecting Shuqaiq P/P to Asir Central. 	
<p>PRELIMINARY ECONOMIC INDICES:</p> <p>IRR = 14.41% Pay back period = 7 years</p>	

PROJECT TITLE: Southern Region 380 kV INTERCONNECTION LINES	COMPLETION DATE: 2008
ESTIMATED CAPITAL COST: 420 MSR	PROJECT LOCATION: Southern Operating Area
<p>DESCRIPTION OF WORK:</p> <p>Based on SEC Engineering Standard, construct the following 380 kV double circuit overhead transmission lines:</p> <ol style="list-style-type: none"> 1. Approximately 130 km long connecting Shuqaiq P/P to Muhayil S/S. 2. Approximately 145 km long connecting Muhayil S/S to Namera S/S. 	
<p>PRELIMINARY ECONOMIC INDICES:</p> <p>IRR = 10.37% Pay back period = 8 years</p>	

DESCRIPTION OF THE PROPOSED TRANSMISSION PROJECTS

PROJECT TITLE: SHOAIBA – NAMERA 380 kV LINE	COMPLETION DATE: 2010
ESTIMATED CAPITAL COST: 400 MSR	PROJECT LOCATION: Western & Southern Operating Areas
<p>DESCRIPTION OF WORK:</p> <p>Based on SEC Engineering Standard, construct approximately 270 km long 380 kV double circuit overhead transmission line connecting Shoaiba S/S to Namera S/S.</p>	
<p>PRELIMINARY ECONOMIC INDICES:</p> <p>IRR = 13.35% Pay back period = 7 years</p>	

PROJECT TITLE: HAIL – AL-JOUF 380 kV LINE	COMPLETION DATE: 2010
ESTIMATED CAPITAL COST: 470 MSR	PROJECT LOCATION: Eastern & Central Operating Areas
<p>DESCRIPTION OF WORK:</p> <p>Based on SEC Engineering Standard, construct approximately 315 km long 380 kV double circuit overhead transmission line connecting Hail Central Station to Al-Jouf Central station.</p>	
<p>PRELIMINARY ECONOMIC INDICES:</p> <p>IRR = 10.02% Pay back period = 8 years</p>	

DESCRIPTION OF THE PROPOSED TRANSMISSION PROJECTS

PROJECT TITLE: HAWIYAH – MUZAHIMIYAH 380 kV LINE	COMPLETION DATE: 2011
ESTIMATED CAPITAL COST: 440 MSR	PROJECT LOCATION: Eastern & Central Operating Areas
<p>DESCRIPTION OF WORK:</p> <p>Based on SEC Engineering Standard, construct approximately 300 km long 380 kV double circuit overhead transmission line connecting Hawiyah S/S to Muzahimiyah S/S.</p>	
<p>PRELIMINARY ECONOMIC INDICES:</p> <p>IRR = 10.65% Pay back period = 8 years</p>	

PROJECT TITLE: QASSIM – MADINAH ±500 kV HVDC LINE	COMPLETION DATE: 2012
ESTIMATED CAPITAL COST: 2,000 MSR	PROJECT LOCATION: Central & Western Operating Areas
<p>DESCRIPTION OF WORK:</p> <ul style="list-style-type: none"> • Build approximately 480 km ±500 kV HVDC bipolar overhead line rated for 1,400 MW per pole between Madinah Al-Munawarah and Qassim. • Construct two (2) converter stations with rating of 2,800 MW at the two ends of the HVDC line and install HVDC filters rated for 220 Mvar at Madinah and Qassim substations. 	
<p>PRELIMINARY ECONOMIC INDICES:</p> <p>IRR = 10.04% Pay back period = 8 years</p>	

DESCRIPTION OF THE PROPOSED TRANSMISSION PROJECTS

<i>PROJECT TITLE:</i> YANBU – DHUBA 380 kV LINE	<i>COMPLETION DATE:</i> 2013
<i>ESTIMATED CAPITAL COST:</i> 570 MSR	<i>PROJECT LOCATION:</i> Western Operating Area
<i>DESCRIPTION OF WORK:</i> Based on SEC Engineering Standard, construct approximately 430 km long 380 kV double circuit overhead transmission line connecting Yanbu S/S to Dhuba S/S.	
<i>PRELIMINARY ECONOMIC INDICES:</i> IRR = 10.08% Pay back period = 8 years	

<i>PROJECT TITLE:</i> QAISUMAH – RAFHA 380 kV LINE	<i>COMPLETION DATE:</i> 2014
<i>ESTIMATED CAPITAL COST:</i> 415 MSR	<i>PROJECT LOCATION:</i> Eastern Operating Area
<i>DESCRIPTION OF WORK:</i> Based on SEC Engineering Standard, construct approximately 280 km long 380 kV double circuit overhead transmission line connecting Qaisumah S/S to Rafha S/S.	
<i>PRELIMINARY ECONOMIC INDICES:</i> IRR = 10.08% Pay back period = 8 years	

DESCRIPTION OF THE PROPOSED TRANSMISSION PROJECTS

PROJECT TITLE: MUZAHIMIYAH – BAHRA ±500 kV HVDC LINE	COMPLETION DATE: 2013
ESTIMATED CAPITAL COST: 2500 MSR	PROJECT LOCATION: Central & Western Operating Areas
<p>DESCRIPTION OF WORK:</p> <ul style="list-style-type: none"> • Build approximately 950 km ±500 kV HVDC bipolar overhead line rated for 1,400 MW per pole between Bahra and Muzahimiyah. • Construct two (2) converter stations with rating of 2,800 MW at the two ends of the HVDC line and install HVDC filters rated for 250 Mvar at Bahra and Muzahimiyah substations. 	
<p>PRELIMINARY ECONOMIC INDICES:</p> <p>IRR = 10.01% Pay back period = 8 years</p>	

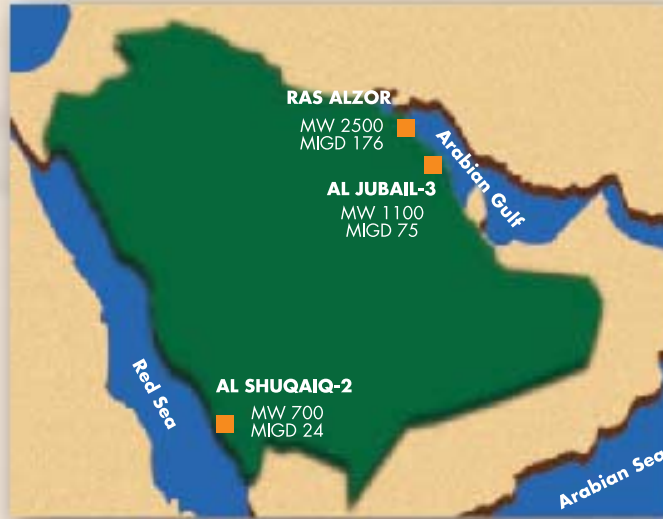
PROJECT TITLE: TABUK – AL-JOUF 380 kV LINE	COMPLETION DATE: 2014
ESTIMATED CAPITAL COST: 480 MSR	PROJECT LOCATION: Eastern & Western Operating Areas
<p>DESCRIPTION OF WORK:</p> <p>Based on SEC Engineering Standard, construct approximately 330 km long 380 kV double circuit overhead transmission line connecting Tabuk S/S to AlJouf S/S.</p>	
<p>PRELIMINARY ECONOMIC INDICES:</p> <p>IRR = 10.06% Pay back period = 8 years</p>	

JOINT PROJECTS





LOCATIONS, COSTS AND CAPACITIES OF THE JOINT PROJECTS



■ Locations of the investment projects

PROJECT	Constructions Cost (SR Billion)	Capacity		
		Water (million gallon/day)	Electricity (Megawatt)	Notes
AL SHUQAIQ-2	1.5	48	700	<i>Under qualification process</i>
RAS ALZOR	9	176	2500	<i>Under qualification process</i>
AL JUBAIL-3	4	75	1100	<i>Under qualification process</i>

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Saudi Electricity Company

Empowering Energy