



# **EDL-Generation Public Company**

## **Presentation Thailand Focus**

### **2017**



# Table of Contents

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- **Lao PDR Overview**
  - Country Overview
  - Industry Overview
  - Lao Power Industry
- **EDL-Generation Public Company**
  - EDL-Gen Overview
  - EDL-Gen Business Expansion
  - EDL-Gen Solar power
  - Financial Performance
  - Investment Merits



## Section 1: Lao PDR Overview





# Country Overview

“Lao PDR is a land-linked country strategically located to benefit from growth in the region.”

## Key Stats

GDP<sup>(1)</sup>:

**USD 12.37 billion**

Population<sup>(1)</sup>:

**6.80 million**

GNI per capita<sup>(1)</sup>:

**USD 1,740**

Land area<sup>(1)</sup>:

**236,800 km<sup>2</sup>**

Population density<sup>(1)</sup>:

**29.5 people per km<sup>2</sup>**

GDP growth<sup>(2)</sup>:

**7%**

Inflation<sup>(2)</sup>:

**1.5%**

Lao PDR is the member of:

**ASEAN** since 1997

**WTO** since 2013



**79.2%** of the country is covered by forest and woodland with rugged mountains – ideal for hydroelectric generation<sup>(2)</sup>

Situated in the center of Greater Makong Subregion.

Lao PDR is politically stable with strong social order



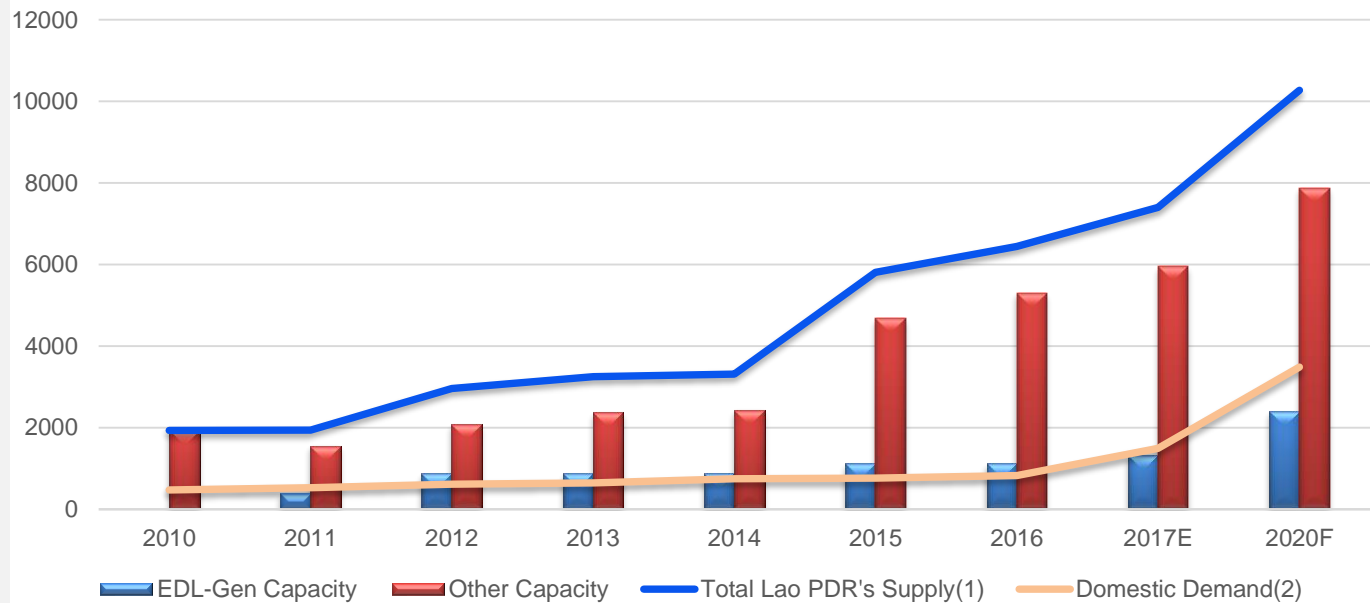
**BBB+/Negative**  
by TRIS Rating



# Lao PDR's Power Industry

## Power : Demand VS Supply

- Lao PDR's power supply is expected to grow rapidly from 6,441 MW in 2016 to 10,277 MW in 2020.
- Despite of such high power supply growth, there is a very high opportunity for Lao PDR's power business due to huge demand from Greater Mekong Subregion ("GMS") in addition to the local demand.
- EDL-Gen is and will be the major power generator in Lao PDR serving more than half of domestic demand



MW	2010	2011	2012	2013	2014	2015	2016	2017F	2020F
EDL-Gen Capacity	-	387	881	881	881	1,131	1,131	1,319*	2,400
Other Capacity	1,931	1,549	2,080	2,370	2,434	4,675	5,310	5,952	7,877
<b>Total Lao PDR's Supply<sup>(1)</sup></b>	<b>1,931</b>	<b>1,936</b>	<b>2,961</b>	<b>3,251</b>	<b>3,315</b>	<b>5,806</b>	<b>6,441</b>	<b>7,400</b>	<b>10,277</b>
Domestic Demand <sup>(2)</sup>	476	527	614	649	744	760	828	1,493	3,488
<b>GMS Demand<sup>(3)</sup></b>	<b>83,259</b>					<b>148,371</b>			<b>212,005</b>

Source: (1) Ministry of Energy and Mines, December 2016.

(2) Power Development Plan 2010-2020, and EDL statistical books 2013-2016

(3) Asian Development Bank, Indicative Master Plan on Power Interconnection in GMS Countries. Manila; ADB. 2010. Update of the GMS Regional Master Plan. Manila, 2002

\* Company information

Notes: Domestic demand in Y2015 (Preliminary data)

GMS demand in Y2015 (Forecast)

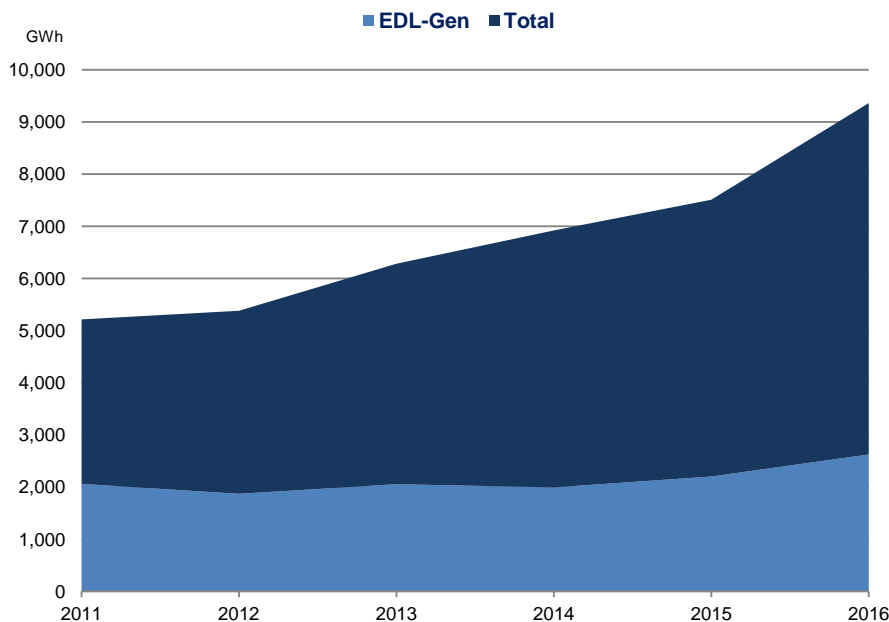


# Major Power Generators in Lao PDR

## Domestic Power Market Shares by Power Generator

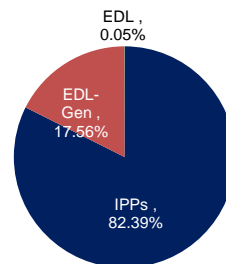
- Considering Lao PDR's domestic power market share in 2010-2013, EDL-Gen was the highest contributor with 49-66% shares while other IPPs' market share was 20-39%. However, in 2014-2016, EDL-Gen's market share fell slightly to approx 42%.

	2011		2012		2013		2014		2015		2016	
	Gwh	%	Gwh	%	Gwh	%	Gwh	%	Gwh	%	Gwh	%
EDL-Gen	2,066	66%	1,877	54%	2,061	48.8%	1,996	41%	2,206	42%	2,629	39.0%
IPPs	999	32%	803	23%	1,630	38.6%	1,865	38%	1,991	38%	4,093	60.8%
EDL	17	1%	18	1%	17	0.4%	25	1%	12.43	0%	13	0.2%
Net Import	70	2%	807	23%	514	12.2%	1,042	21%	1,095	21%		
<b>Total</b>	<b>3,152</b>	<b>100%</b>	<b>3,505</b>	<b>100%</b>	<b>4,222</b>	<b>100%</b>	<b>4,928</b>	<b>100%</b>	<b>5,304</b>	<b>100%</b>	<b>6,735</b>	<b>100%</b>



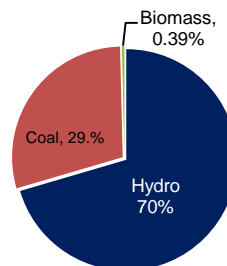
Source: EDL, Electricity Statistics Books 2013 - 2016

## Total Power Capacity Breakdown



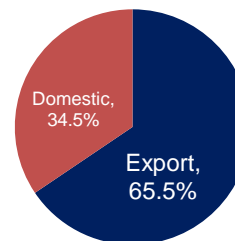
Source: Energy Planning and Policy Department, Ministry of Energy and Mines, Lao PDR, December 2016

## Source of Power Breakdown



Source: Energy Planning and Policy Department, Ministry of Energy and Mines, Lao PDR, December 2016

## Domestic Usage and Export Breakdown



Source: Energy Planning and Policy Department, Ministry of Energy and Mines, Lao PDR, December 2016



# Hydropower Economics

## 1. Despite high CAPEX, no fuel costs

- A renewable source of energy without pollution
- No fuel costs and low operating costs

## 2. Very site-specific

- No two projects being the same
- Often be more economical to develop a site to provide peaking energy, rather than base load

## 3. Key advantage from load following

- Hydropower mobilizes within the minute-by-minute time frames required by real-time balancing
- Conventional thermal power, coal fired and gas fired plants require some time to start up or warm up, which often takes four to eight hours

## 4. Geological location of Lao PDR

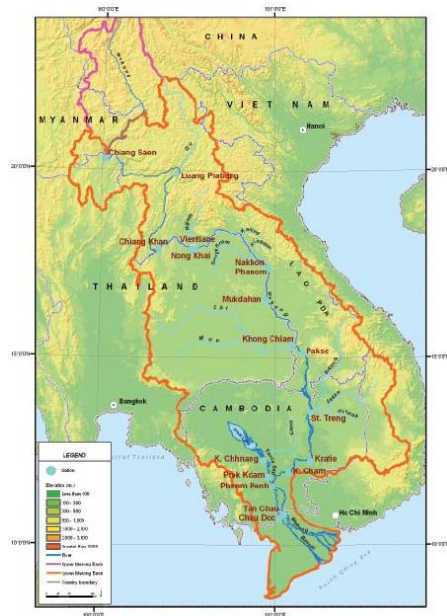
- Endowed with many natural resources
- Around 35% of total inflows of the Mekong River are contributed by main tributaries scattered throughout the territory of Lao PDR

# Water Source

*Water for electricity generation mainly comes from rainfall, not from the Mekong River*

## The Mekong River

- From its source in Tibetan Plateau, Mekong rivers continues south for approximately 4,800 km to the South China Sea, draining a total catchment area of 795,000 km<sup>2</sup> within the six countries of China, Myanmar, Lao PDR, Thailand, Cambodia and Viet Nam. About 25 percent of the Mekong river basin is located in the Lao PDR.



## The 6 Mekong River Basin Countries with their Catchment

- Lao PDR has the largest catchment area and contributes 35% of the water to the Mekong River.
- Only 16% of water from China contributes to Mekong River, while Lao PDR contributes 35 percent of the Mekong's total flow.
- Therefore, no problem will occur if China constructs dams on the Mekong River.

Country	Catchment Area (km <sup>2</sup> )	Catchment Area as % of MRB	Flow as % of MRB
China	165,000	21	16
Myanmar	24,000	3	2
Lao PDR	202,000	25	35
Thailand	184,000	23	18
Cambodia	155,000	20	18
Vietnam	65,000	8	11
<b>Total</b>	<b>795,000</b>	<b>100</b>	<b>100</b>





Section 2:

# EDL-Generation Public Company



# EDL-Gen at a Glance

## A key play in power industry in Lao PDR

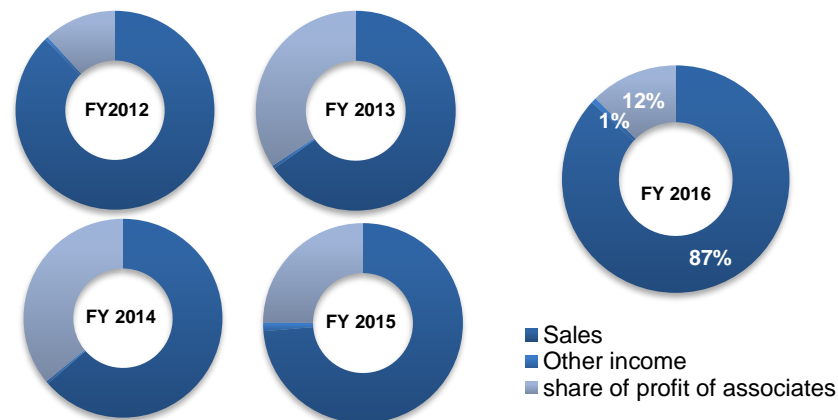
EDL-Generation Public Company (“EDL-Gen”), an **electrical energy firm** in **Lao PDR**, has been **established in 2010** by splitting the generation division from Electricite Du Laos (“EDL”) to establish as a public company.

**BBB+/ “Negative” Outlook**  
by TRIS Rating

### Key Financial Status

USD 1,034 mn Market Cap<sup>(1)</sup> (81% of Lao PDR's Market)  
USD 2,342 mn Total Asset<sup>(2)</sup>  
USD 1,193 mn Total Debt<sup>(2)</sup>  
USD 1,149 mn Total Equity<sup>(2)</sup>

### Revenue Breakdown by Operations



### Current Capacity

Total Company's Equity Attributed Capacity

**1,137 MW**

Including

**10 Wholly-owned – 619 MW**

**5IPPs+1Solar – 518 MW**

**Number of staff:**

**582 People (Female 100)**

### EDL-Gen Operations

EDL-Gen operates the **wholly-owned** hydropower generation assets acquired from EDL and built for selling electricity to EDL.

EDL-Gen invests in equity shares in **Independent Power Producers (“IPPs”)** and built the transmission lines including power stations for selling electricity to EDL and Electricity Generating Authority of Thailand (“EGAT”).

EDL-Gen also provides operation and maintenance services of power-generation assets in Lao PDR.

Source: (1) Lao Securities Exchange, 7, Aug, 2017  
(2) EDL-Generation Public Company, Financial Statement Y2016  
(3) USD/LAK = 8,200,



# Business Overview

*EDL-Gen – generating & wholesale of electricity in Lao PDR*

## Generate electricity for wholesale to EDL

- Generate electricity & sell 'wholesale' to EDL to be sold domestically, & for export in the future
- Build transmission lines & electro stations as required

## Invest or joint venture in other electricity generation projects (IPPs)

- Invest in the electricity-generating projects of EDL that are currently under construction or in the planning phase
- Replace EDL as shareholder in these projects

## Provide management & maintenance services for other electric-gen projects

- Serve all the electricity-generating projects in the country
- Boost, repair, & maintain the generators (electro stations)

# EDL-Gen's Certificates & Awards



**Nam Ngum 1:**  
DAS Certification Environmental  
Management System,  
ISO 14001:2004

**Selabum Hydro Power Plant:**  
ASEAN Best Practices Renewable Energy  
Project Awards

**EDL-Generation:**  
Certification,  
ISO 9001:2008 QMS International  
Standard

**ASIAMONEY**



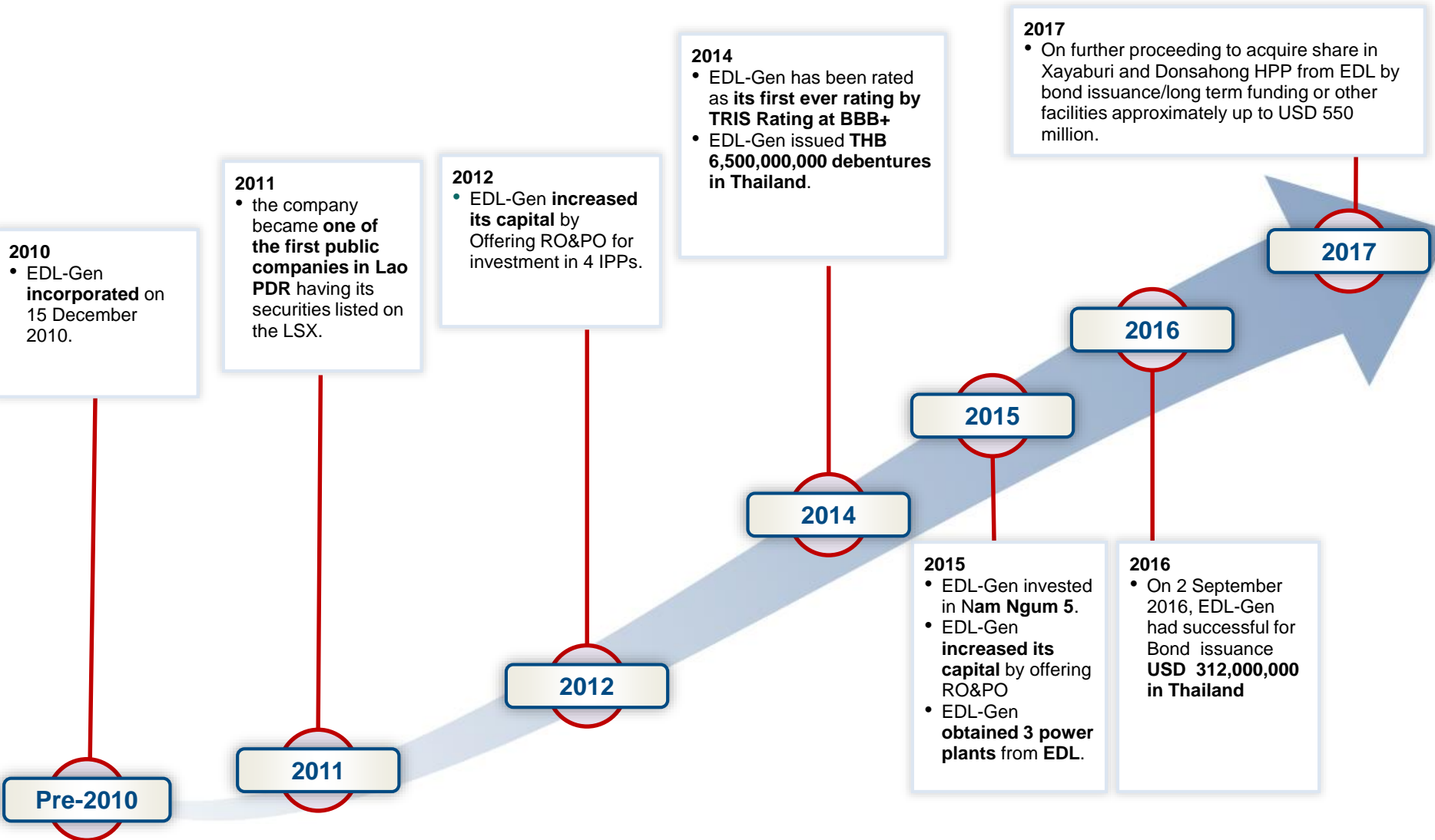
**THB 6.5bn Triple Tranche Bond:**  
Asiamoney Country Deals 2014 Awards &  
IFR Asia Awards 2015 "Frontier Markets  
Issue"



**The Asset Asian Awards 2016**  
Best Deal – Southeast Asia "Best Bond"



# Key Milestones

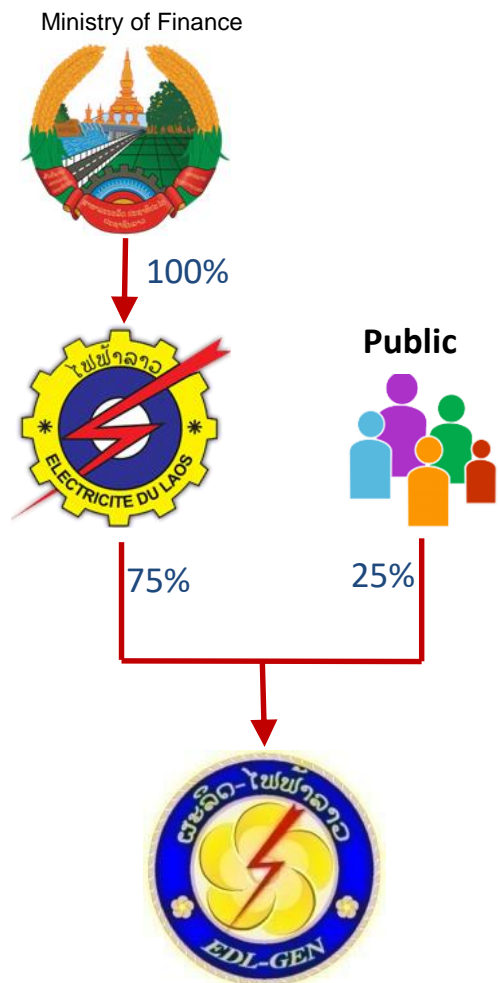






# Major Shareholders

*Government owned EDL is the largest shareholder of EDL-Gen*

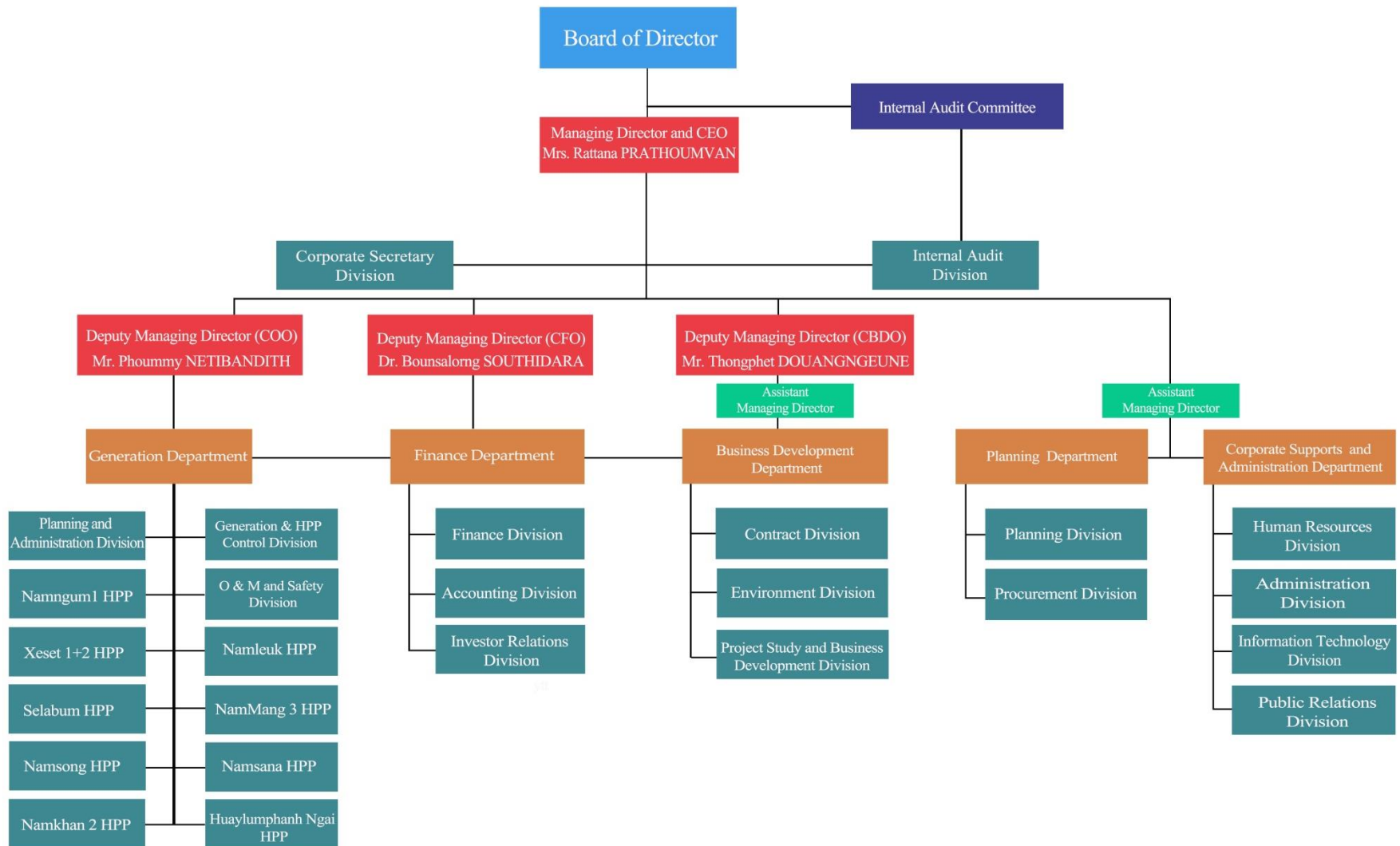


No.	Name	No. of Shares (shares)	% of Total
1	Electricite du Laos	1,259,477,773	75.00%
2	Ratch-Lao Services Company Limited	94,848,324	5.65%
3	RH International (Singapore) Corporation PTE	74,929,210	4.46%
4	Banque Pour Le Commerce Extérieur Lao	38,350,000	2.28%
5	Krung Thai Bank Public Company Limited	25,839,533	1.54%
6	Dragon Capital Clean Development Ltd.	12,232,608	0.73%
7	Senglaty Savanhkham	11,528,268	0.69%
8	PT Sole Co. Ltd.	10,187,500	0.61%
9	PROBUS OPPORTUNITIES SA SICAV FIS	8,283,598	0.49%
10	Gulf International Investment Hongkong	7,766,666	0.46%
Total Top 10 Shareholders		1,543,443,412	91.91%
Total Shareholders		1,679,303,697	100.00%

Note: As of 12 April 2017



# Current Organizational Structure



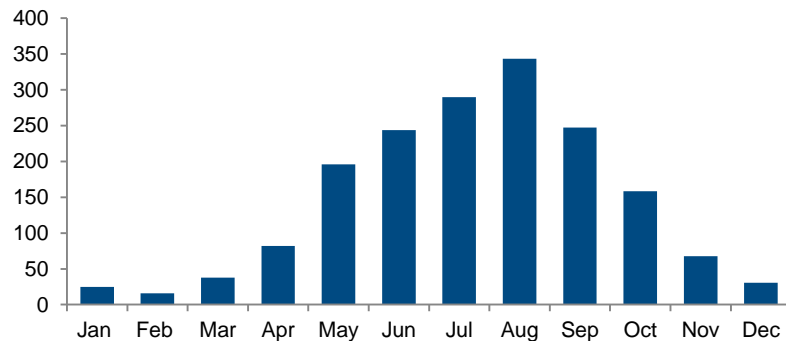


# Track Record of Sufficient Water Supply

## Average Monthly Rainfall in Lao PDR from 1990-2012

- The average annual rainfall between 1990 – 2012 was 1,737.1 mm.

MM



Source: Climatic Research Unit (CRU) of University of East Anglia

## Average Precipitation for EDL-Gen Plant Locations

- Average precipitation at power plant locations is generally better than national average.

Power Plant	Track Record	Precipitation (mm)
Nam Ngum 1	2006-2016	2,464
Nam Leuk	2006-2016	2,502
Nam Mang 3	2006-2016	2,798
Nam Song	2011-2016	2,703
Xeset 1	2010-2016	1,456
Xeset 2	2014-2016	1,984
Selabam	2006-2016	1,989

Source: EDL-Generation Public Company, January 2016

Notes: These projects is just operated including: Nam Khan2 2,336 mm, HLG 959. mm and NSN 2,296 mm.

## EDL-Gen's Proven Track Record

- Sufficient water reservoir stock helps alleviate potential water shortfall.

Name	Track Record	Capacity (MW)	Water outflow for power generation (mil.m <sup>3</sup> )			Average Reservoir stock (mil.m <sup>3</sup> )
			Max.	Min.	Ave.	
Nam Ngum 1	2005-2016	155	11,894	8,468	10,806	4,590
Nam Leuk	2005-2016	60	543	333	460	134
Nam Mang 3	2005-2016	40	184	116	156	43
Xeset 1*	2005-2016	45	485	308	408	0.32
Xeset 2*	2010-2016	76	420	253	373	0.73

Source: EDL-Generation Public Company, January 2016

Notes\*: Xeset 1 and Xeset 2 are runoff dams



# Current Portfolio of Assets

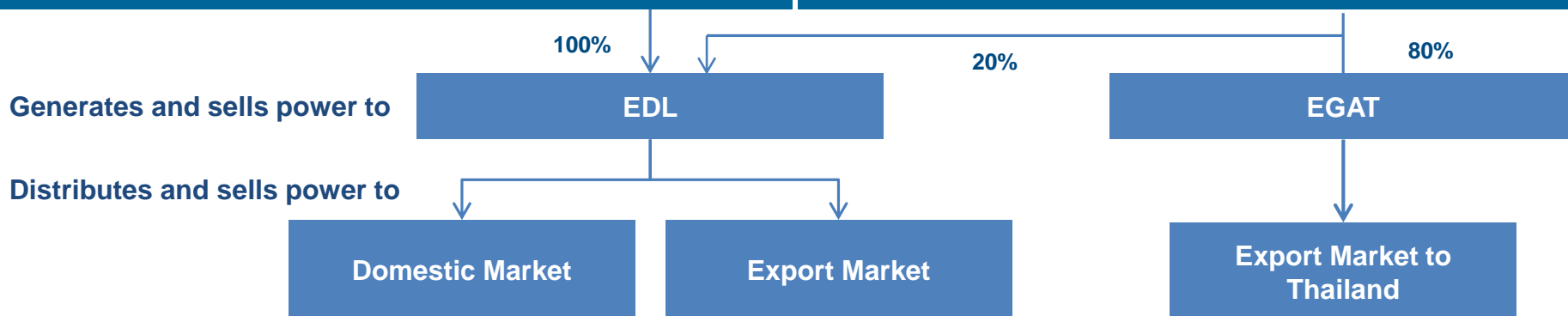
Total Company's Equity Attributed Capacity of 1,137 MW

## EDL-Gen 10 Wholly-Owned Capacity 619 MW

No.	Name	Location	Installed Capacity (MW)	COD
1	Nam Ngum 1	Vientiane	155	1971
2	Nam Leuk	Vientiane	60	2000
3	Nam Mang 3	Vientiane	40	2005
4	Xeset 1	Saravanh	45	1991
5	Xeset 2	Saravanh	76	2009
6	Selabam	Champasak	5	1969
7	Nam Song	Vientiane	6	2012
8	Nam Sana	Vientiane	14	11/11/2014
9	Houay Lamphanh Gnai	Xekong	88	14/11/2015
10	Nam Khan 2	Luang Prabang	130	28/11/2015

## EDL-Gen 5 IPPs & 1 Solar Capacity 518 MW

No	Name	Location	%	Equity (MW)	Other shareholders	COD
1	Nam Ngum 2	Vientiane	25	154	CH.K 28.5%, Ratch 25%, Bangkok express 12.5%, Shlapark USA 4%, PT 4%, TEAM consulting 1%	2012
2	Nam Lik1-2	Vientiane	10	10	CWE (China) 80%/EDL free share 10%	2010
3	Theun-Hinboun	Bolikhamxai	60	300	Nordic group (Norway) 20%, GMS Power (Thailand) 20%	1998, 2013
4	Houay Ho	Attapeu	20	30	Suez Energy (Belguim) 60%, HHPC (Thailand) 20%	1998
5	Nam Ngum 5	Vientiane	15	18	Shinohydro (China) 85%	2012
6	Solar power	Vientiane	60	6	Pathana Energy 40%	2017



# First Solar Farm in Lao PDR



Installed Capacity	10 MW (7MW+3MW)
Developer	EDL-Gen Solar Power Com. 60% Phethana Energy 40%
Location	Naxaythong district, Xaythany District Vientiane Capital
Power buyer	Eletricite du Laos
COD	February, August 2017
Annual Generation	4.8 GWh (Projection)

## The objective of Solar Energy development is:

- ☐ To provide energy services to off-grid and remote areas
- ☐ To reduce consumption of other type of energy
- ☐ To supply electricity during the dry season







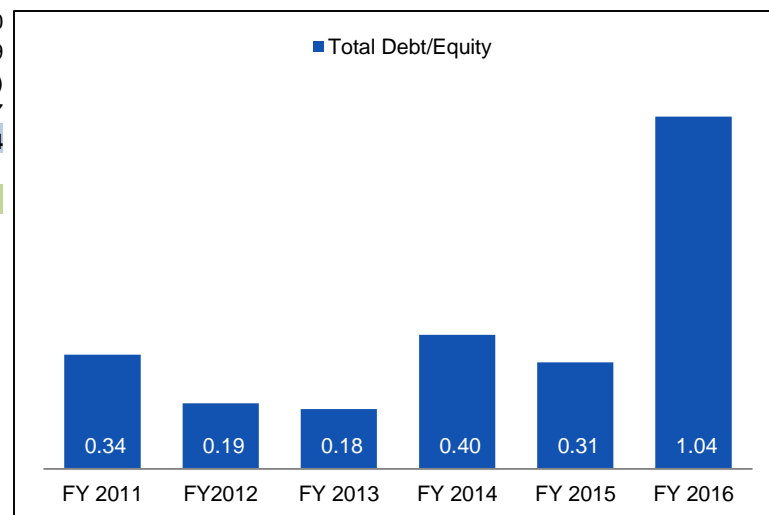
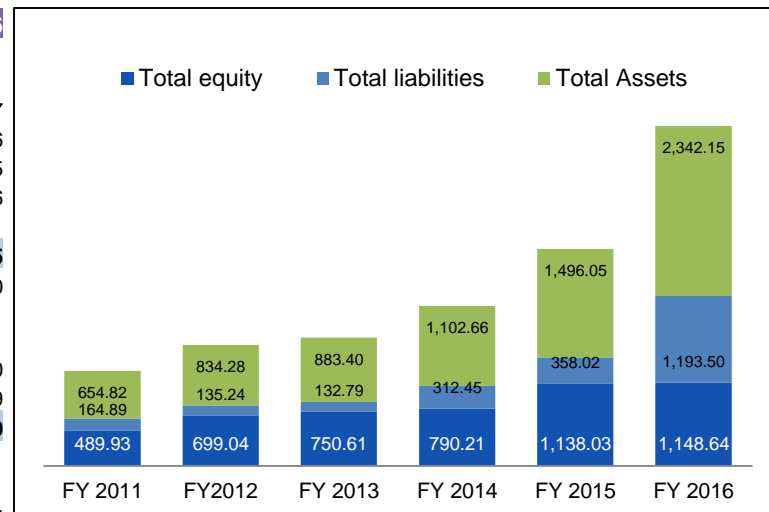
# Financial Performance

## Balance Sheet

Unit : Million USD	FY 2011	FY2012	FY 2013	FY 2014	FY 2015	FY 2016
<b>Assets</b>						
<b>Current portion of long borrowings</b>	106.77	77.88	88.52	223.19	202.33	457.37
Interests in associates	0.00	66.96	71.47	76.29	88.82	10.16
Interests in joint ventures	0.00	148.30	162.28	187.33	194.79	287.15
Assets under concession, net	493.44	493.11	501.39	518.23	542.84	1,176.56
Other non-current assets	54.61	48.02	59.73	97.61	467.26	410.91
<b>Total Assets</b>	<b>654.82</b>	<b>834.28</b>	<b>883.40</b>	<b>1,102.66</b>	<b>1,496.05</b>	<b>2,342.15</b>
<b>Liabilities</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>Current portion of long borrowings</b>	26.49	21.72	16.50	12.44	22.25	26.81
Other current liabilities	4.61	4.19	15.62	39.23	28.89	544.70
Long-term borrowing, net	133.78	109.33	100.66	260.78	306.88	621.99
<b>Total liabilities</b>	<b>164.89</b>	<b>135.24</b>	<b>132.79</b>	<b>312.45</b>	<b>358.02</b>	<b>1,193.50</b>
<b>Equity</b>						
Share capital	434.30	613.11	613.11	613.11	839.65	839.65
Share premium	1.95	17.78	17.78	17.78	123.20	123.20
legal reserve	7.30	13.66	25.81	37.15	45.16	52.09
Translating financial statements	0.00	(0.04)	0.88	(0.18)	(0.26)	(0.17)
Ratained earning	46.39	54.54	93.04	122.35	130.28	133.87
<b>Total equity</b>	<b>489.93</b>	<b>699.04</b>	<b>750.61</b>	<b>790.21</b>	<b>1,138.03</b>	<b>1,148.64</b>
<b>Key financial Ratios</b>						
Total Debt/EBITDA	1.7	1.4	0.9	2.2	2.9	7.6
Total Debt/Equity	0.34	0.19	0.18	0.40	0.31	1.04
EBITDA/Interest	19.2	22.4	38.0	36.6	15.8	8.1
Total Debt/Total Assets	0.3	0.2	0.2	0.3	0.2	0.5

- Assets have grown markedly due to continued investments in generation assets and shares in IPPs financed by bond in 2014, RO/PO in 2015 and USD bond in 2016 which is effected to D/E ratio

Noted: Exchange rate 8,000kip/\$





# Financial Performance

## Income statement

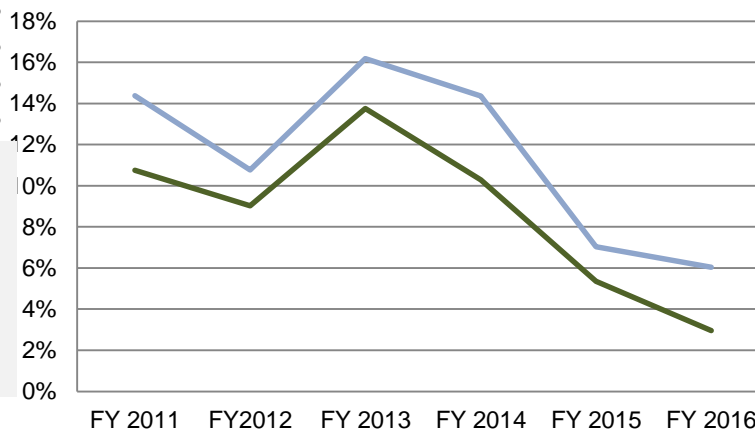
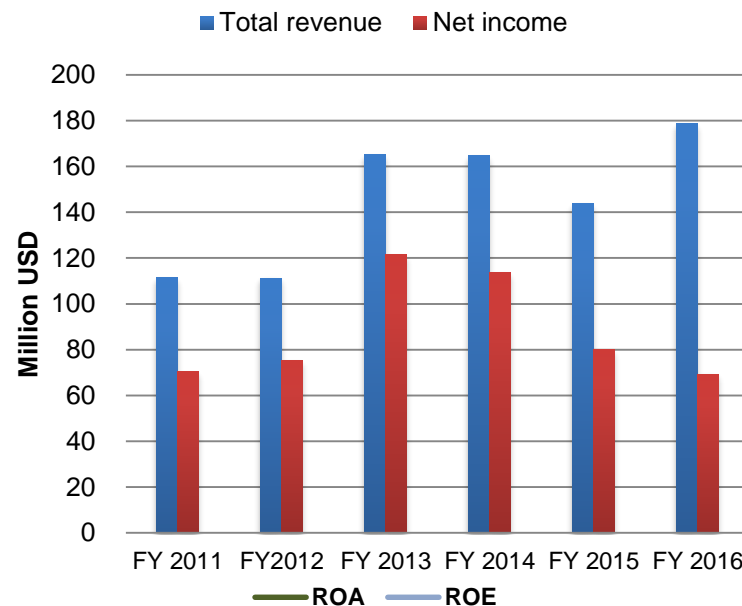
Unit : Million USD	FY 2011	FY2012	FY 2013	FY 2014	FY 2015	FY 2016
Sales	110.22	97.49	107.80	104.90	105.97	155.15
Other income	1.22	0.58	0.84	0.71	2.02	1.38
share of profit of associates	0.00	13.20	56.72	59.31	35.78	22.26
<b>Total revenue</b>	<b>111.44</b>	<b>111.26</b>	<b>165.36</b>	<b>164.92</b>	<b>143.77</b>	<b>178.79</b>
Cost of sale(excl.depreciation)	(6.59)	(3.67)	(4.61)	(4.26)	(6.38)	(6.54)
Administrative expenses	(6.00)	(7.73)	(14.19)	(15.44)	(15.13)	(15.09)
<b>EBITDA</b>	<b>98.85</b>	<b>99.86</b>	<b>146.56</b>	<b>145.22</b>	<b>122.27</b>	<b>157.15</b>
Depreciation	(18.99)	(19.57)	(20.88)	(22.69)	(28.18)	(54.26)
Foreign exchange gain,net	(0.49)	2.87	3.06	(2.26)	(1.25)	(8.10)
<b>EBIT</b>	<b>79.37</b>	<b>83.16</b>	<b>128.74</b>	<b>120.26</b>	<b>92.84</b>	<b>94.80</b>
Interest expense	(5.16)	(4.46)	(3.86)	(3.97)	(7.74)	(19.36)
Income tax	(3.76)	(3.39)	(3.42)	(2.84)	(4.99)	(6.14)
<b>Net income</b>	<b>70.45</b>	<b>75.31</b>	<b>121.47</b>	<b>113.46</b>	<b>80.10</b>	<b>69.29</b>

### Key financial ratios

EBITDA margin	88.7%	89.7%	88.6%	88.1%	85.0%	87.9%
Net profit margin	63.2%	67.7%	73.5%	68.8%	55.7%	38.8%
ROA	10.8%	9.0%	13.8%	10.3%	5.4%	3.0%
ROE	14.4%	10.8%	16.2%	14.4%	7.0%	6.0%

- Total Revenue in 2016 was higher than 2015, due to 3 projects transferred. However, share of profit in 2016 was lower than 2015, due to poorer performance of IPPs in the Central-South of Lao PDR
- Lower ROA for 2015 due to new assets (Nam Ngum 5) and new capital raised for further investments. In 2016 USD bond issuance and new asset transfer from EDL.

Noted: Exchange rate 8,000kip/\$

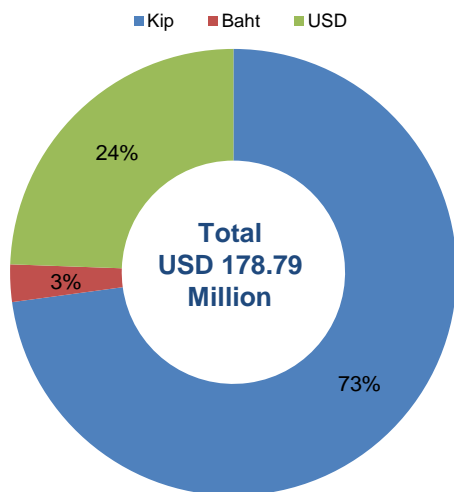




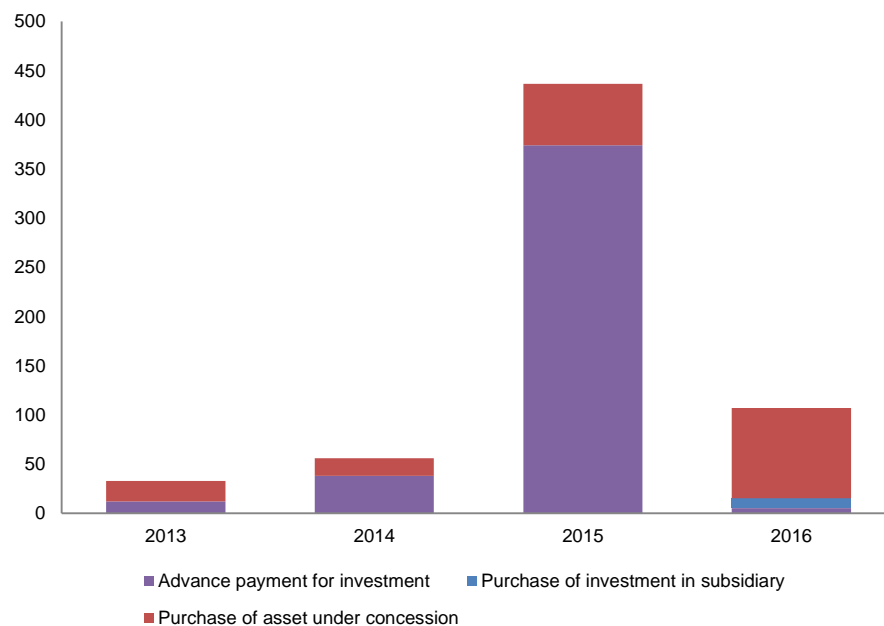
# Financial Performance

## Breakdown of Revenues and Expenses by Currency

Revenues Breakdown by Currency (Income statement)



CAPEX Breakdown by nature



Currency Denominated	Y2016 (Mil.USD)	%
LAK	156.5	73
USD	17.4	24
THB	4.8	3
<b>Total</b>	<b>179.8</b>	<b>100%</b>

By Nature	Y2016 (Mil.USD)	%
Advance payment	5.1	4.8
Investment in subsidiary	10.2	9.5
Purchase of asset	91.7	85.7
<b>Total</b>	<b>106.9</b>	<b>100.0%</b>

# Power Business Expansion in MW

## Business Strategy & Plan



2017	Stake(%)	MW	2018	Stake(%)	MW
Nam San3A	60%	41	Nam Ngum 1 Exp DFE	100%	80
Nam San3B	60%	27	Nam Ngum 1 Exp Unit6	100%	40
Solar Power1	60%	7	Nam Khan 3	100%	60
Nam Ou6	15%	27	Nam Hinboun	100%	30
Nam Ou2	15%	18	Nam Chiean 1	100%	104
Nam Ou5	15%	36	Xeset 3	100%	24
Nam long	20%	1	Nam Lik1	10%	6
Nam Ngiep2	10%	18	Selabam Ex	100%	8
Nam Beng	20%	7	Nam Tha1	20%	34
Nam Mang1	10%	6	Xeset 2 Ex	100%	10
Total		188	Solar Power2	60%	12
			Xekaman3	15%	38
			Total		446

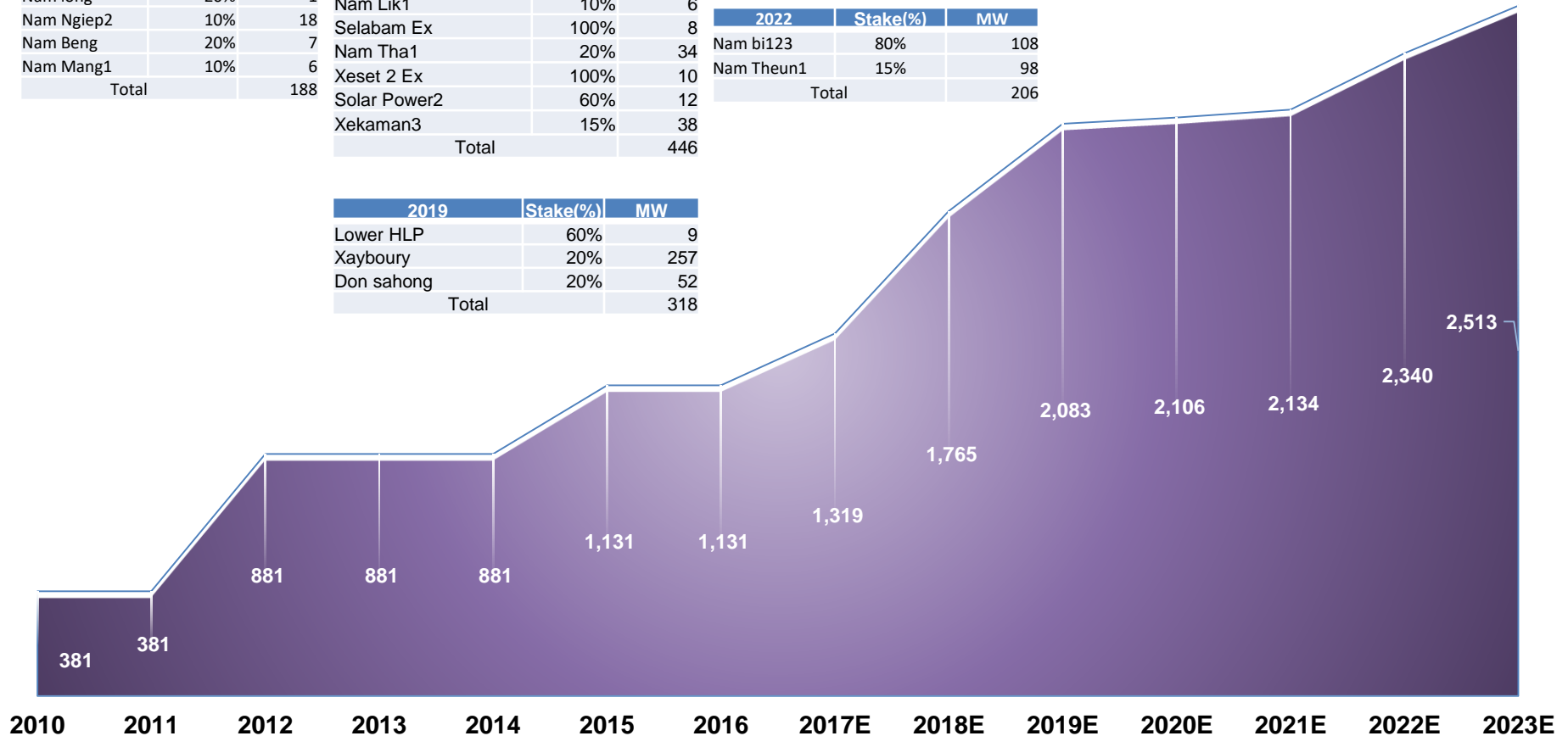
2019	Stake(%)	MW
Lower HLP	60%	9
Xayboury	20%	257
Don sahong	20%	52
Total		318

2020	Stake(%)	MW
Nam Phoun	51%	22.95

2021	Stake(%)	MW
Nam Dik1	70%	28

2022	Stake(%)	MW
Nam bi123	80%	108
Nam Theun1	15%	98
Total		206

2023	Stake(%)	MW
Parkbeng	19%	173.3





# Investment Merits

1. Strong asset growth	<ul style="list-style-type: none"><li>• Since 2012 to 2016, EDL-Gen invested in 10 Wholly-Owned and 5 IPPs to increase its equity attributed capacity to 1,131 MW.</li><li>• Equity attributed capacity is expected to increase approximate to 2,513 MW in 2023</li></ul>
2. Growing regional power demand	<ul style="list-style-type: none"><li>• Location in the Indochina region will allow exporting power to insatiable neighbours.</li><li>• Regional power demand expected to increase by 128,746 MW or CAGR of 9.80% from 2010 to 2020.</li></ul>
3. Highly support from government	<ul style="list-style-type: none"><li>• Government supports on power industry especially Hydropower projects.</li></ul>
4. Low off-taker risk	<ul style="list-style-type: none"><li>• The company ensures its off take with long term PPA agreements.</li><li>• All off take contracts are with government entities (EGAT and EDL).</li></ul>
5. Strategic location	<ul style="list-style-type: none"><li>• Lao PDR is criss-crossed with many rivers and streams and has the largest catchment area of Makong River basin and contributes 35% of the water to the Mekong River.</li><li>• Improving infrastructure in region will lead to enhanced economic cooperation with neighbouring countries.</li></ul>
6. Low leverage to support growth	<ul style="list-style-type: none"><li>• EDL-Gen has low leverage with total debt/equity of 1.04 as of December 2016, essential to support growth.</li></ul>





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# Q & A



# Disclaimer

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This presentation might contain “forward-looking statements”, which are based on current expectations and projections about future events, and include all statements other than statements of historical facts, including, without limitation, any statements preceded by, followed by or that include the words “targets”, “believes”, “expects”, “aims”, “intends”, “will”, “may”, “anticipates”, “would”, “plans”, “could”, “should”, “predicts”, “projects”, “estimates”, “foresees” or similar expressions or the negative thereof, as well as predictions, projections and forecasts of the economy or economic trends of the markets, which are not necessarily indicative of the future or likely performance of the Company. Such forward-looking statements, as well as those included in any other material discussed at the presentation, concern future circumstances and results and involve known and unknown risks, uncertainties and other important factors beyond the Company’s control that could cause the actual results, performance or achievements of the Company to be materially different from future results, performance or achievements expressed or implied by such forward-looking statements. Such forward-looking statements are based on numerous assumptions and estimates regarding the Company and its group’ present and future business strategies and the environment in which the Company will operate in the future. Forward-looking statements are not guarantees of future performance. These forward-looking statements speak only as at the date of this presentation, and none of the Company, nor any of its agents, employees or advisors intends or has any duty or obligation to supplement, amend, update or revise any such forward-looking statements to reflect any change in the Company’s expectations with regard thereto or any change in events, conditions or circumstances on which any such statements are based or whether in the light of new information, future events or otherwise. Given the aforementioned risks, uncertainties and assumptions, you should not place undue reliance on these forward-looking statements as a prediction of actual results or otherwise.

The results of operations for the periods reflected herein are not necessarily indicative of results that may be achieved for future periods, and the Company’s actual results may differ materially from those discussed in the forward-looking statements as a result of various factors, including but not limited, to those discussed in the offering memorandum and any supplement thereto.

This presentation should not be treated as advice relating to legal, taxation, financial, accounting or investment matters. By attending this presentation you acknowledge that you will be solely responsible for your own assessment of the market and the market position of the Company and of the risks and merits of any investment in the Shares, and that you will conduct your own analysis and be solely responsible for forming your own view of the potential future performance of the Company’s business.



## Appendix



# Power Business Expansion by issuance THB Baht 6,500 Million

No	Project Name	Stake	List of Shareholders	EPC Cost (M\$)	Installed MW	Gwh	Equity MW	COD	Loan (M\$)	Expected investment	Progress %
1	Nam Khan2	100%	EDL-Gen	309	130	558	130	2015	293.1	43.1	Completed
2	Houay lam Phan Gnai	100%	EDL-Gen	199	88	480	88	2015	189.3	34.4	Completed
3	Nam Sana	100%	EDL-Gen	30	14	50	14	2014	30.0	2.4	Completed
4	Nam Khan3	100%	EDL	128	60	240	60	2018	121.4	34.8	Completed
<b>Sub Total 100% owned</b>				<b>666</b>	<b>292</b>	<b>1,328</b>	<b>292</b>		<b>633.8</b>	<b>114.7</b>	
1	Nam Ngum5	15%	EDL, Sino 85%	200	120	500	18	2014	140.0	9.9	Completed
2	Nam Ou2	15%	EDL, Sino 85%	300	120	502	18.0	2017	225.1	14.1	Completed
3	Nam Ou5	15%	EDL, Sino 85%	333	240	1,049	36.0	2017	249.9	15.6	Completed
4	Nam Ou6	15%	EDL, Sino 85%	358	180	739	27.0	2017	268.6	16.8	Completed
5	Nam Long	20%	EDL, Private 80%	13	5	37	1	2013	10.4	0.7	Completed
<b>Sub Total IPP</b>				<b>1,205</b>	<b>665</b>	<b>2,827</b>	<b>100</b>	<b>-</b>	<b>894.1</b>	<b>57.1</b>	
<b>9</b>	<b>Grand Total</b>			<b>1,870</b>	<b>957</b>	<b>4,155</b>	<b>392</b>	<b>-</b>	<b>1,527.8</b>	<b>171.8</b>	



# Power Business Expansion by RO&PO, USD 340 Million

No	Project Name	Stake	EPC Cost (M\$)	Installed MW	Gwh	Equity MW	COD	Loan (M\$)	Investment cost (M\$)	Progress
1	Nam Chiean 1	100%	250	104	448	104	2018	238	79.37	94%
2	Nam Hinboun	100%	90	30	155	30	2018	90	22.90	86%
3	Xeset 3	100%	51	24	86	24	2018	46	18.24	Completed
4	Nam Ngum 1 Exp DFE	100%	122	80	284	80	2018	116	61.06	89%
5	Nam Ngum 1 Exp Unit6	100%	57	40	88	40	2020	51	30.53	-
	<b>Sub Total 100% owned</b>		<b>569</b>	<b>278</b>	<b>1,061</b>	<b>278</b>		<b>540</b>	<b>212.10</b>	
1	Nam Ngiep2	10%	345	180	723	18.0	2016	256	13.74	Completed
2	Nam Beng	20%	68	34	137	6.8	2017	51	5.19	Completed
3	Xekaman3	15%	346	250	977	37.5	N/A	261	28.62	Under-construction
4	Nam Lik1	10%	114	60	249	6.0	2019	91	4.58	62%
5	Nam Mang1	10%	87	64	224	6.4	2017	57	4.88	Completed
6	Nam Tha1	20%	428	168	721	33.6	2018	342	25.64	86%
	<b>Sub Total IPP</b>		<b>1,388</b>	<b>756</b>	<b>3,031</b>	<b>108</b>		<b>1,059</b>	<b>82.65</b>	
1	Nam Phoun	51%	103	45	182	23	2020	88	9.79	Under Negotiation CA
2	Nam Bi123	80%	282	135	549	108	2022	240	31.95	Under Negotiation CA
	<b>Sub Total</b>		<b>385</b>	<b>180</b>	<b>731</b>	<b>131</b>		<b>327</b>	<b>41.74</b>	
13	<b>Total</b>		<b>2,342</b>	<b>1,214</b>	<b>4,823</b>	<b>517</b>		<b>1,926</b>	<b>336.49</b>	





# Projects Expansion by Bond Issuance M\$ 312

No.	Project Name	Capacity (MW)	GWh	Project Cost (MUSD)	Stake (%)	Equity (MW)	Investment (MUSD)	COD	Plant Factor	Progress %
<b>EDL-Gen wholly own 100%</b>										
1	Selabam (Expansion)	8	23	25.96	100%	8	5.96	2018	32%	28%
2	Xeset2 (Expansion)	10	25	27.00	100%	10	2.00	2018	29%	7%
<b>Total (1)</b>		<b>18</b>	<b>48</b>	<b>52.96</b>		<b>18</b>	<b>7.96</b>			

No.	Project Name	Capacity (MW)	GWh	Project Cost (MUSD)	Stake (%)	Equity (MW)	Investment (MUSD)	COD	Plant Factor	Progress %
<b>EDL-Gen : IPP Projects</b>										
1	Nam Theun 1	650	2,510	1,438	15%	97.5	60.07	2022	44%	20%
2	PakBeng	912	4,268	2,300	19%	173.3	110.0	2023	53%	Doc review
3	Solar	32	54	37	60%	19.2	37.0	2017	19%	31%
4	Nam Dik 1,2,3	40	211	112	70%	28.0	9.01	2021	60%	Doc review
<b>Total (2)</b>		<b>1,634</b>	<b>7,043</b>	<b>3,887</b>		<b>318</b>	<b>216.08</b>			

No.	Project Name	Capacity (MW)	GWh	Project Cost (MUSD)	Stake (%)	Equity (MW)	Investment (MUSD)	COD	Plant Factor	Progress %
<b>EDL-Gen : Maintenance and Financing Cost</b>										
1	Xeset1-2 Overhaul	-	-	8.1	100%	-	8.1	2016	-	Completed
2	Nam Mang3 Overhaul (2 units)	-	-	21.3	100%	-	21.3	2016	-	Agreement review
3	Nam Phoun Finance Cost	45	182	100.5	51%	22.95	3.85	2019	46%	Neg-CA
4	Nam Bi1,2,3 Finance Cost	135	554	276.0	80%	104.0	40.02	2022	47%	Neg-CA
<b>Total (3)</b>		<b>180</b>	<b>736</b>	<b>405.9</b>		<b>126.95</b>	<b>73.27</b>			

Total (1) + (2)+(3) = USD 297.31 million, rest of them for working capital

\*Remark: This is number after deduct consultant fee and others



# Board of Directors



## **Dr. Khammany INTHIRATH**

Chairman of the Board of Directors  
• Minister of Ministry of Energy and Mines



## **Mr. Bounoum SYVANPHENG**

Vice Chairman of the Board of Directors  
Managing Director of EDL (CEO)



## **Mr. Bounma MANIVONG**

Director  
• Deputy Managing Director of EDL



## **Mrs. Rattana PRATHOUMVAN**

Managing Director of EDL-Gen (CEO)



## **Mrs. Vanida SAVADDY**

Director  
• Acting Director of State Enterprise Department,  
Ministry of Finance



## **Mr. Sychath BOUTSAKITIRATH**

Director  
• Deputy Director of Department of Energy Business,  
Ministry of Energy and Mines



## **Assoc. Prof. Dr. Kongsy SENGMAKY**

Independent Director  
• Deputy Minister of Ministry of Education and Sports



## **Prof. Dr. Khamlusa NOUANSAVANH**

Independent Director  
• General Director of Department of Student Affairs,  
Ministry of Education and Sports

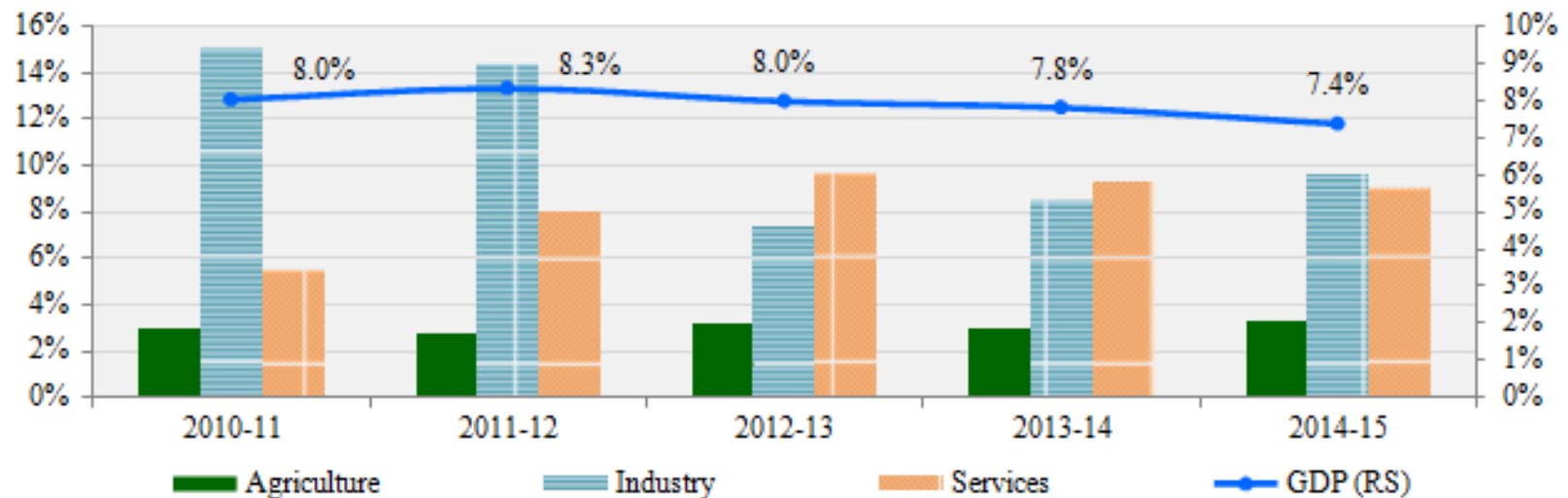


## **Assoc. Prof. Dr. Khampheui PHOMMACHAN**

Independent Director  
• Acting Head of the office of Financial Affairs,  
National University of Lao PDR

# High GDP Growth

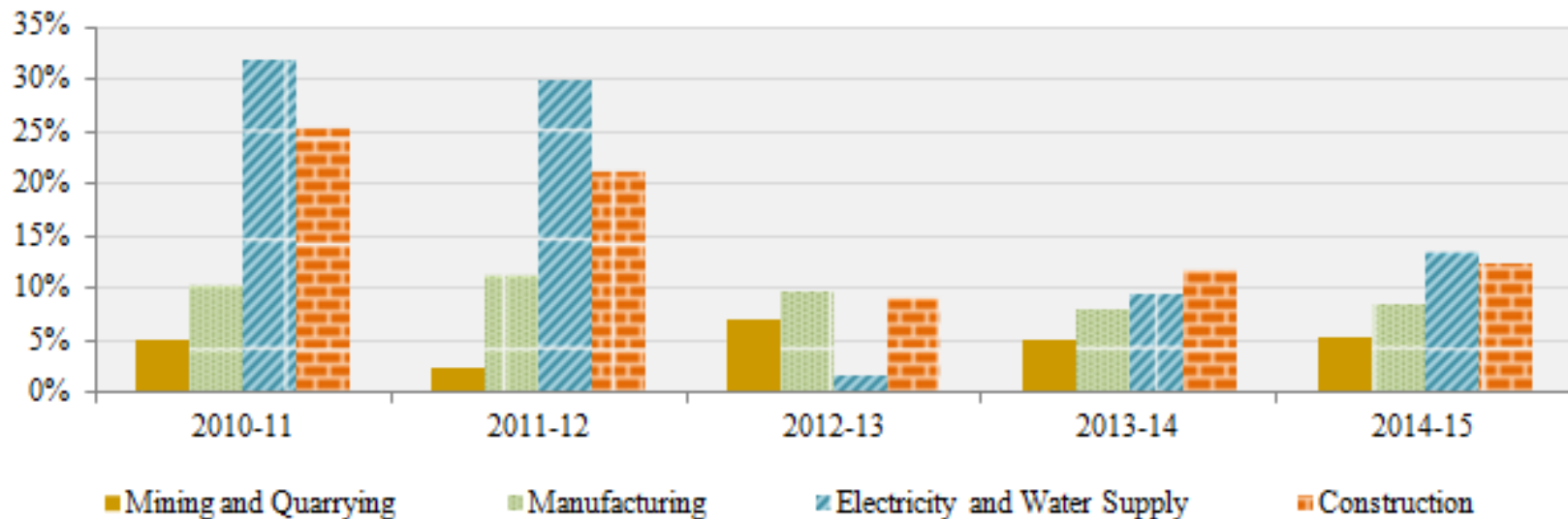
- The FY 2014-2015, the real gross domestic product ( real GDP) grew by 7.4%, which was mainly driven by industry, service, and agriculture sector at 9.7 percent, 9.1 percent, and 3.3 percent, respectively . The main factor supporting the economic growth remain Foreign Direct Investment or FDI inflow, which concentrates in construction, hydropower and service sector.



**Source:** Lao Statistics Bureau, Ministry of Planning and Investment

# Industry Breakdown by Sectors

- The FY 2014-2015, industry sector grew by 9.7 percent and accounted for 29.3 percent of GDP. Factors driving the growth were due to an increase in electricity and water supply, and construction in the 8 new hydropower plants and the ongoing construction of the approved investment projects. While manufacturing and mining grew as the same level as previous year.



**Source:** Lao Statistics Bureau, Ministry of Planning and Investment

# Our Off-takers



## Electricite Du Laos (“EDL”)



### Key Facts<sup>(1)</sup>

Employees:

**5,614**

Consumer Meters:

**1,222,698**

Transformer capacity:

**3,110.7 MVA**

Number of substations:

**53**

- Established in 1961
- The premier state-owned power utility in Lao PDR under the Ministry of Energy and Mines
- Owning and operating the country’s main generation, transmission and distribution assets in Lao PDR
- Managing electricity imports to and exports from its extensive power grid, especially with EGAT through 500kV, 230kV and 115kV transmission lines.
- EDL is EDL-Gen’s largest shareholder (75%) and is also EDL-Gen’s sole power off-taker

## Electricity Generating Authority of Thailand (“EGAT”)



### Key Facts

Total installed capacity:

**15,010 MW**

**40** power plants across Thailand  
Including

**3** thermal power plants

**6** combined cycle power plants

**22** hydropower plants

**8** renewable energy plants

**1** diesel power plant

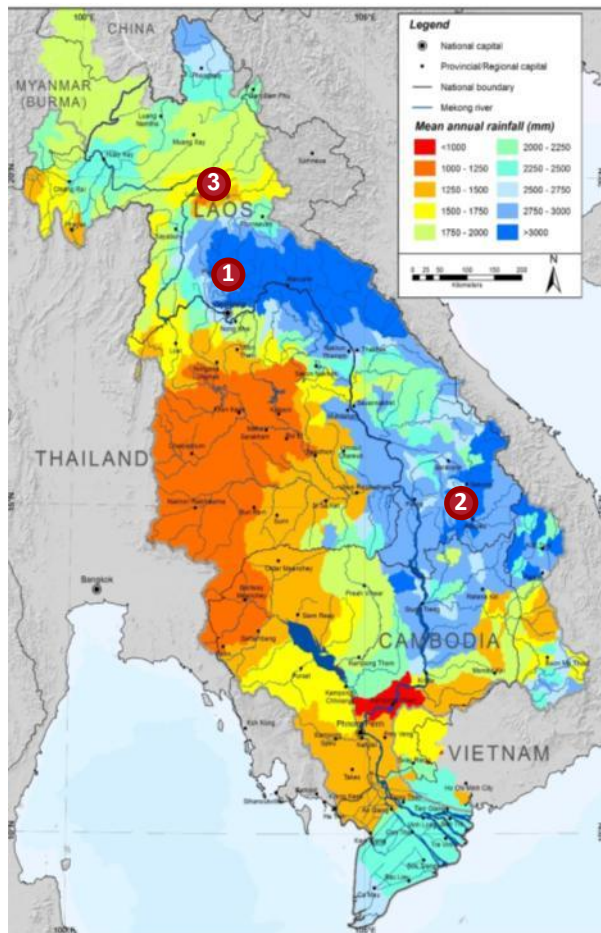
- Established in 1969
- Thailand’s leading state-owned power utility under the Ministry of Energy
- Responsible for electric power generation and transmission for the whole country as well as bulk electric energy sales
- Owning and operating a high voltage transmission network which covers all parts of the country
- Purchasing bulk electricity from private power producers and neighboring countries and sell wholesale electric energy to two distributing authorities and a small number of direct industrial customers as well as neighboring utilities.



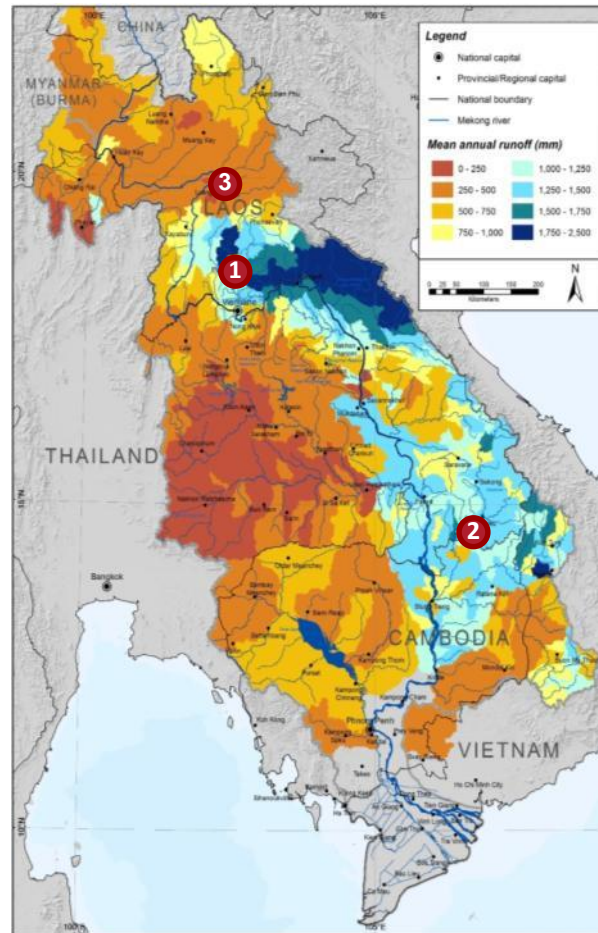
# Hydropower Plants Sites

*Hydropower plants situated in locations with high rainfall and runoff*

**Mekong Basin Main Annual Rainfall**



**Mekong Basin Main Annual Runoff**



**1** Wholly Owned : Nam Ngum 1, Nam Leuk, Nam Mang 3, and Nam Song, Nam Sana

IPPs : Nam Lik 1-2, Nam Ngum 2, Thrun Hinboun, Nam Ngum 5

**2** Wholly Owned : Xeset 1, Xeset 2, Selabam, Houay Lamphanh Gnai

IPPs : Houay Ho

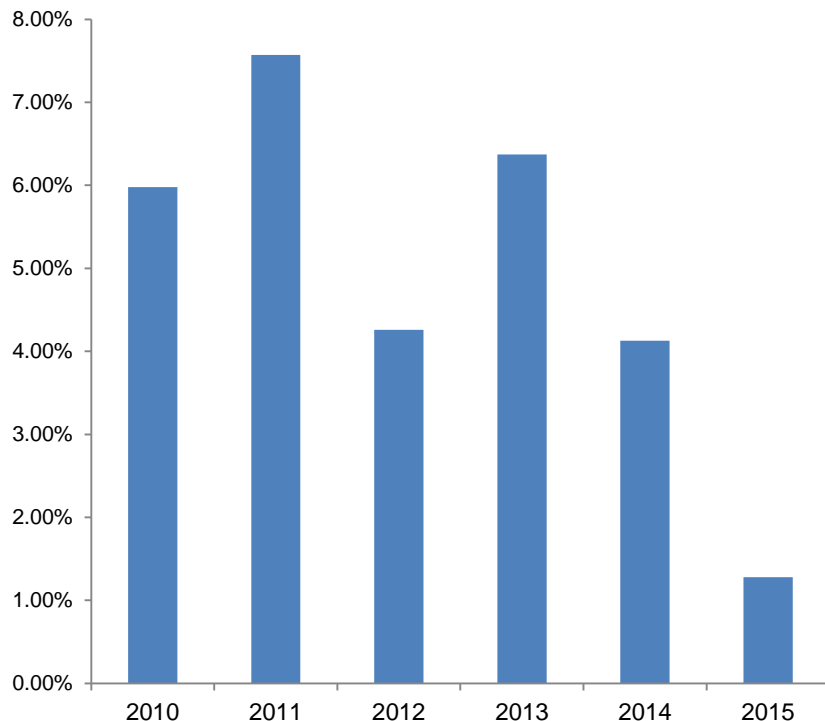
**3** Wholly Owned : Nam Khan 2



# Well-Managed Inflation with Deficit Policy

## Inflation Rate

- Stable macroeconomic since the Asian financial crisis has been proven by the fact that annual inflation peaked at 134% in 1999 then successfully managed to drop to 7.2% in 2005 and has remained at single digit level and lower than GDP growth rate.
- In 2015, an average annual inflation rate was decrease to 1.28 % and remains stable as targeted.

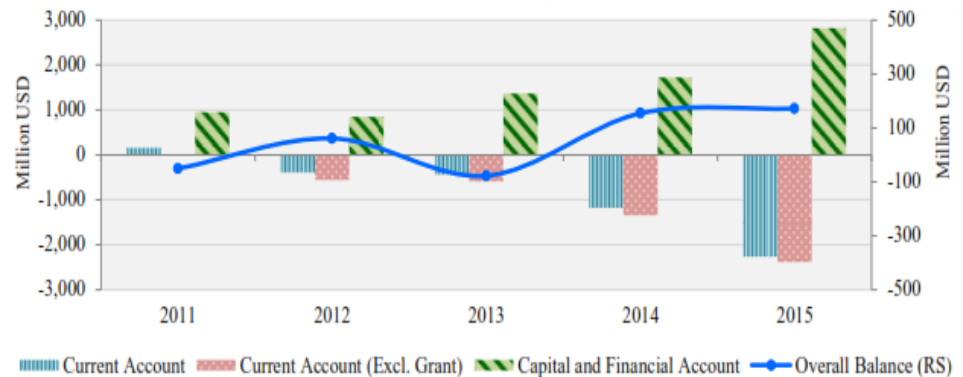


Source: Bank of Lao PDR, Annual Economic Report 2015

## Balance Payment

- In 2014, overall balance registered a surplus of USD 153.78 million with following two major contributors:
  - surplus in capital and financial account of USD 1,719.98 million.
  - deficit in current account of USD 1,178.33 million.

In 2015, overall, balance marked a surplus of USD 171 million. As a consequence of the capital and financial account recorded a surplus of USD 2,816 million, while the current account recorded a deficit of USD 2,265 million. As a result, gross international reserve covered 6.37 months of prospective imports.



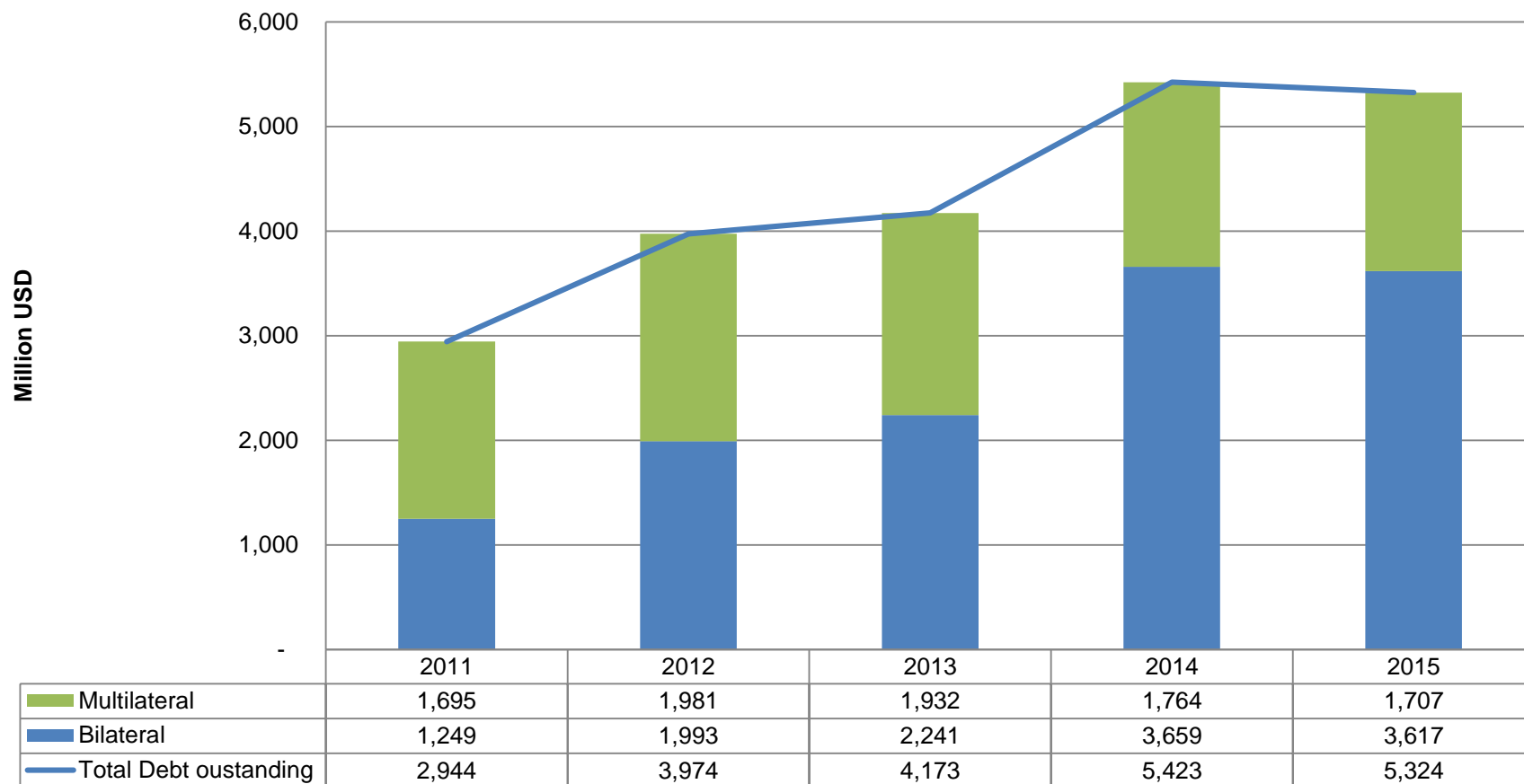
Source: Bank of Lao PDR, Annual Economic Report 2015



# Outstanding External Debt

## Outstanding External Debt

- In 2015, total outstanding external debt of Lao PDR recorded at USD5,324 million (decreased by 1.83% YoY).
- 68% of total debts are bilateral debts and the remaining are multilateral.



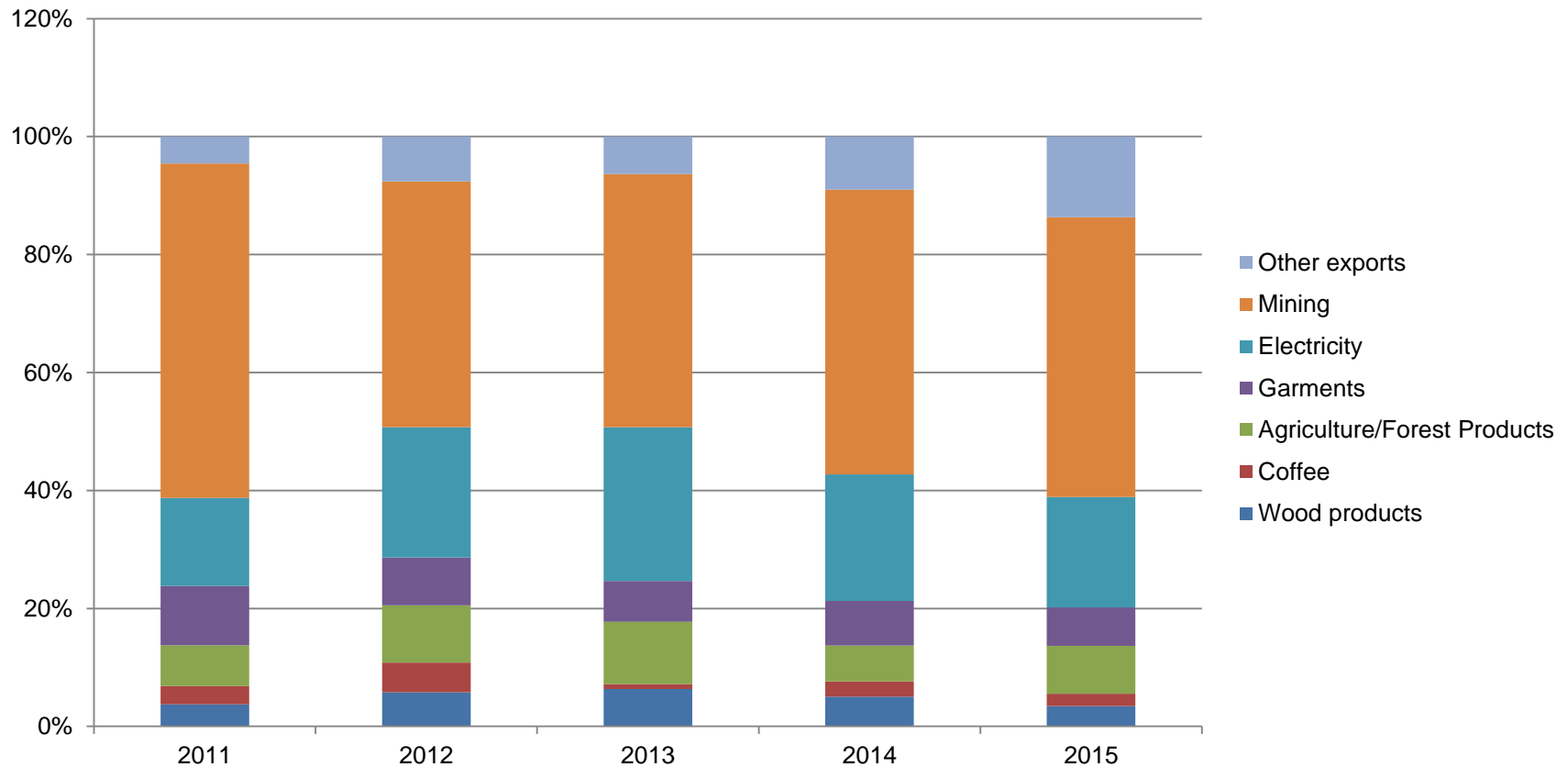
Source: Bank of Lao PDR, Annual Economic Report 2015



# Lao PDR's Export Contribution by Industry

## Lao PDR's Export Contribution by Industry

- Apart from being a significant contributor to the country's export, electricity industry's portion has demonstrated a rapid growth between 2011 – 2015.





# Term Sheet of THB Bond

<b>Issuer</b>	EDL-Generation Public Company		
<b>Issuer Rating</b>	BBB+ by TRIS		
<b>Security Type</b>	Senior Unsecured THB Bond		
<b>Issue Rating</b>	BBB+ by TRIS		
<b>Offering Format</b>	Thai SEC – Private Placement to Institutional and High Net-Worth Investors		
<b>Issue Date</b>	12 December 2014		
<b>Total Issuance Amount</b>	THB 6,500 million		
<b>Tenor</b>	5 Years	7 Years	10 Years
<b>Coupon</b>	4.95% p.a.	5.20% p.a.	5.45% p.a.
<b>Issuance Size per Tranche</b>	THB 1,500 million	THB 2,000 million	THB 3,000 million
<b>Maturity Date</b>	12 December 2019	12 December 2021	12 December 2024
<b>Coupon Payment</b>	Semi-Annually		
<b>Coupon Type</b>	Fixed Rate		
<b>Principal Payment</b>	Bullet Payment at Maturity		
<b>Listing</b>	ThaiBMA		
<b>Sole Advisor</b>	Twin Pine Consulting Company Limited		
<b>Joint Lead Arrangers and Bookrunners</b>	Bank of Ayudhya, Standard Chartered Bank, TMB Bank		

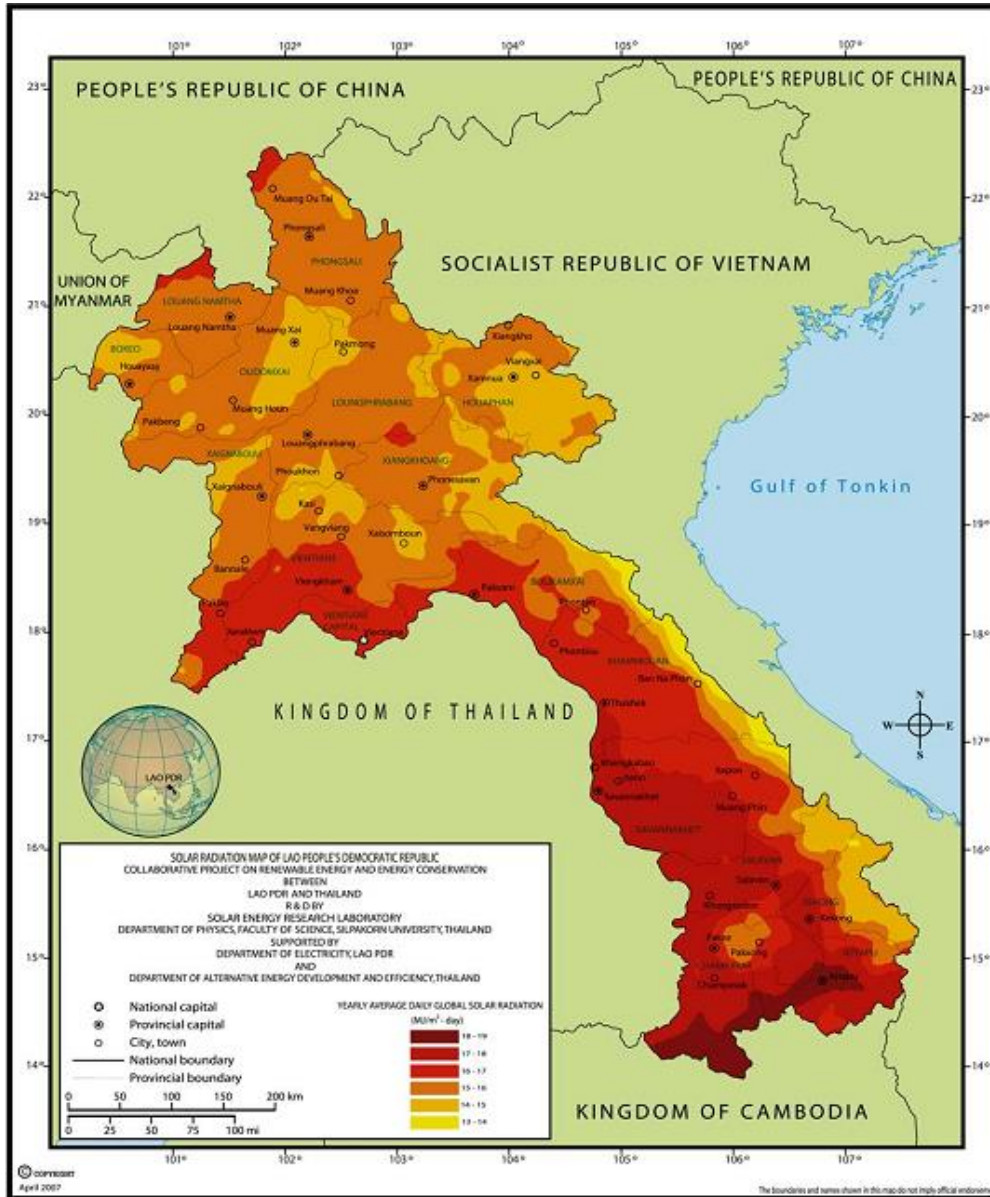


# Term Sheet of USD Bond (2016)

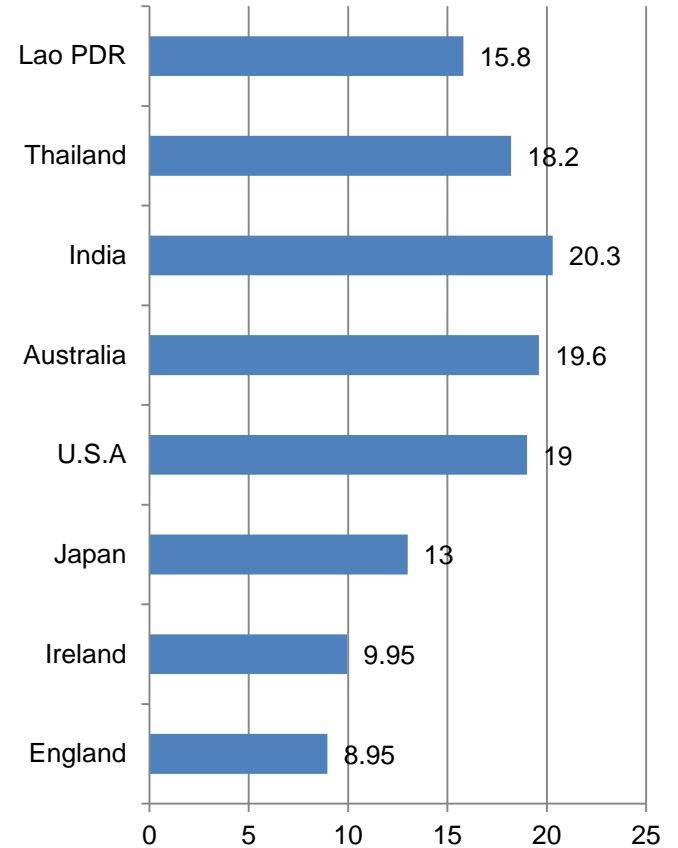


<b>Issuer</b>	EDL-Generation Public Company		
<b>Issuer Rating</b>	BBB+ by TRIS		
<b>Security Type</b>	Senior Unsecured USD Bond		
<b>Issue Rating</b>	BBB+ by TRIS		
<b>Offering Format</b>	Thai SEC – Private Placement to Institutional and High Net-Worth Investors		
<b>Issue Date</b>	02 September 2016		
<b>Total Issuance Amount</b>	USD 312 million		
<b>Tenor</b>	7 Years	10 Years	12 Years
<b>Coupon</b>	5.00% p.a.	5.59% p.a.	5.98% p.a.
<b>Issuance Size per Tranche</b>	USD 51 million	USD 166 million	USD 95 million
<b>Maturity Date</b>	02 September 2023	02 September 2026	02 September 2028
<b>Coupon Payment</b>	Semi-Annually		
<b>Coupon Type</b>	Fixed Rate		
<b>Principal Payment</b>	Bullet Payment at Maturity		
<b>Listing</b>	ThaiBMA		
<b>Sole Advisor</b>	Twin Pine Consulting Company Limited		
<b>Joint Lead Arrangers and Bookrunners</b>	Standard Chartered Bank, Krung Thai Bank PCL		

# Solar power potential



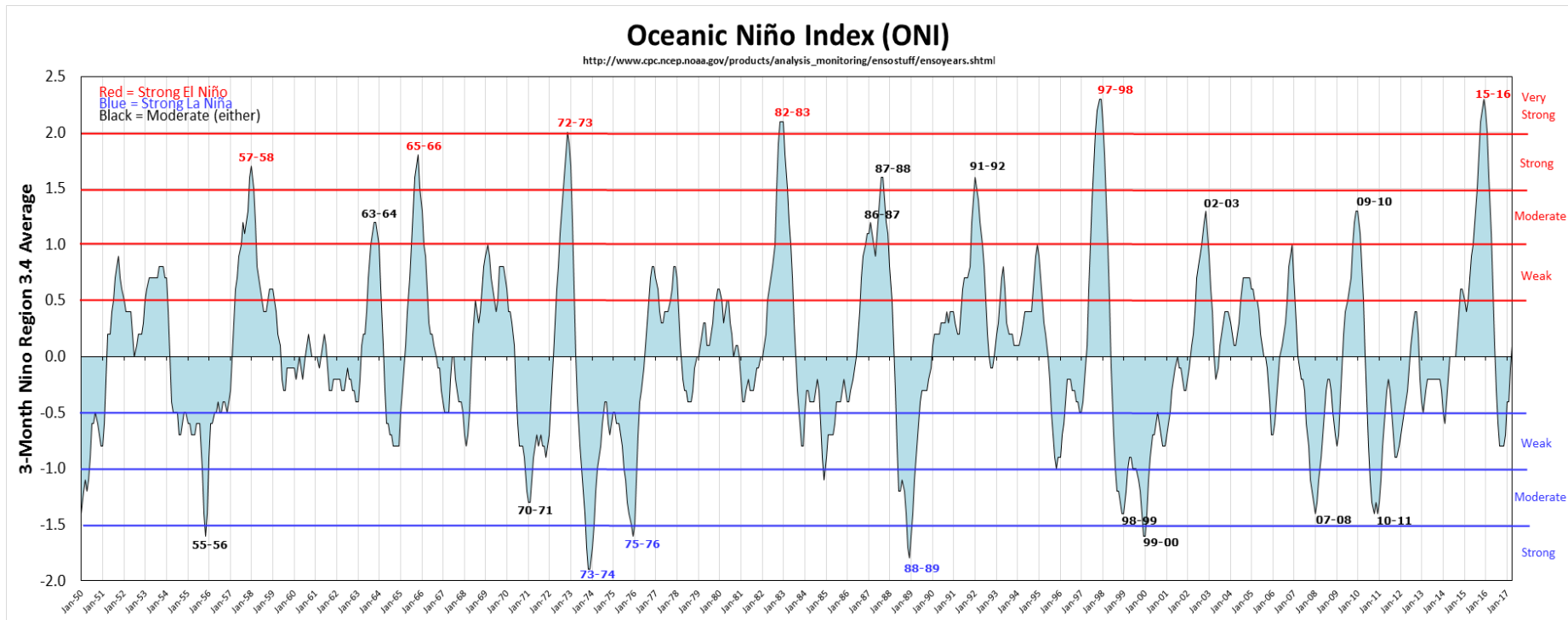
## Solar radiation (MJ/m<sup>2</sup> - day)



Source: Department of Alternative Energy Development and Efficiency, Ministry of Energy, Thailand

# El Nino & La Nina

- El Nino has already reached its peak and is now declining and should return to normal this summer (mid-2016).
- During this time, there is a 50% chance of La Nina developing by the end of summer. This usually brings wetter conditions to Southeast Asia, and hence likely to bring more rainfalls to Lao PDR.
- La Nina can typically last twice as long as El Nino.



Source: <http://www.bbc.com/news/science-environment-35612558> , February 2016  
<http://www.bloomberg.com/news/articles/2016-04-12/la-nina-odds-strengthen-to-50-as-weakening-el-nino-seen-ending> , April 2016  
<http://ggweather.com/enso/oni.htm> , May 2016



# El Nino & La Nina

El Niño				La Niña		
Weak	Mod	Strong	Very Strong	Weak	Mod	Strong
1951-52	1963-64	1957-58	1982-83	1950-51	1955-56	1973-74
1952-53	1986-87	1965-66	1997-98	1954-55	1970-71	1975-76
1953-54	1987-88	1972-73	2015-16	1964-65	1998-99	1988-89
1958-59	1991-92			1967-68	1999-00	
1968-69	2002-03			1971-72	2007-08	
1969-70	2009-10			1974-75	2010-11	
1976-77				1983-84		
1977-78				1984-85		
1979-80				1995-96		
1994-95				2000-01		
2004-05				2011-12		
2006-07				2016-17		

Source: <http://www.bbc.com/news/science-environment-35612558> , February 2016  
<http://www.bloomberg.com/news/articles/2016-04-12/la-nina-odds-strengthen-to-50-as-weakening-el-nino-seen-ending> , April 2016  
<http://ggweather.com/enso/oni.htm> , May 2016

# Xayaburi and Donsahong HPP



- Located Xayaboury Province
- Installed capacity 1,285 MW/ 7,000 GWh p.a/
- Plant factor 62%
- Project cost approximately USD 4,000 mil/Loan USD 2,450 mil.
- Shareholders: Corkanxang30%,EDL20%,Global Power Synergy company 25%, EGCO 12.5%, Bangkok Expressway7.5% and PT construction 5%.
- Lender: Krungthai
- COD 2019
- MOU tariff:60 MW to EDL, Levelized tariff 6.56 Cent/Kwh
- Payment : USD & Baht



- Located Champasack Province
- Installed capacity 260 MW/ 1,957 GWh p.a/
- Plant factor 85%
- Project cost approximately USD 520 mil/Loan USD 468 mil.
- Shareholders: GOL/EDL 20%,Ground Rose Ltd 79%, Silver Agreage Ltd1%
- Lender: Mega first Cooperation Berhad (During construction)
- COD 2019
- MOU tariff: Domestic only, tariff start 6.15 Cent (esc 1%)/ 5.63 Cent
- Payment : 90% USD & 10% LAK

# Summary of PPA



Type	Name	Tariff	PPA Term	Currency of Payment	Purchase/Sale	Off-Taker	Remark
HPP (7 projects)	Nam Ngum 1, Nam Leuk, Nam Mang 3, Xeset 1, Xeset 2, Selabam, Nam Song	Start from 413.89 Kip/KWh and subject to 1% annual increase throughout PPA term.  Use exchange rate of 8000 LAK/USD. If the LAK/USD fluctuates more than 10%, either party can initiate amendment to tariff payable. However, the tariff payable after adjustment must not be lower than that without adjustment.	30 years to match with CA (2010-2040) with a possible extension of 10 years	100% LAK	EDL's purchase commitment is such that EDL agrees to purchase from EDL-Gen not less than 90% of Net Available Output (the Take or Pay commitment)  EDL-Gen's supply commitment is such that EDL-Gen agrees that the Facility shall be Available for Dispatch of supply to EDL not less than 90% of its declared Availability (The Supply commitment) taking into consideration all outages, force majeure, dispatch failures and the like.	100% to EDL	PPA
HPP (3 projects)	Nam Sana, Houay Lamphan Gnai, Nam Khan 2	Start from 6.5 USc/KWh, subject to 1% annual increase until Year 10.  At Year 11, tariff is 6.36 US cents/KWh and subject to 1% annual increase until Year 30.		50% USD and 50% LAK		100% to EDL	Tariff MOU (Date 02/02/2016)



# Summary of PPA (2)



Type	Name	Tariff	PPA Term	Currency of Payment	Purchase/Sale	Off-Taker	Remark
IPP	Nam Lik 1-2 (10%)	Start from 4.680 USc/KWh (Base Tariff) in 2011, subject to 1% annual increase to Y2035.  Energy Purchase Price = Base Tariff  Excess Dispatch Price= Base Price x 60%	25 years to match with CA (2011-2035)	90% USD and 10% LAK	EDL commits to annual purchase, on a take or pay basis, Base Energy of 435 GWh.	100% to EDL	
IPP	Nam Ngum 2 (25%)	Over first six years of COD, tariff are: Primary Energy (PE) = 2.475 USc + 0.965 THB per KWh Secondary Energy (SE) = 1.255 THB/KWh Excess Energy (EE) are 1.062 THB/KWh  From 7th year onwards: Primary Energy (PE) = 2.668 USc + 1.041 THB per KWh Secondary Energy (SE) = 1.353 THB/KWh Excess Energy (EE) are 1.145 THB/KWh	25 years	USD and THB		100% to EGAT	
IPP	Houay Ho (20%)		30 years from COD	USD and THB	EGAT commits to purchase all Net Electrical Output from HHPC, provided always that EGAT shall have no obligation to Dispatch any electrical energy on a Sunday, and Deemed Net Electrical Output.	150 MW to EGAT and 2 MW to EDL	

# Summary of PPA (3)



Type	Name	Tariff	PPA Term	Currency of Payment	Purchase/Sale	Off-Taker	Remark
IPP	Theun Hinboun (60%)	EGAT tariff = 2.595 USc for 50% of sales + 0.9083 THB for 50% of sales  EDL tariff = 75% of EGAT tariff		USD and THB	EDL commits to purchase all Net Available Output	440 MW to EGAT and 60 MW to EDL	
IPP	Nam Ngum 5 (15%)	Start from 4.590 USc/KWh at COD year and subject to 1% annual increase.  Energy in excess of 500 GWh would be priced at 60% of the tariff	25 years (2011-2035)	85% USD and 15% LAK	EDL commits to buy, on take or pay basis, Base Energy of 500 GWh.	100% to EDL	
IPP	Solar Power (60%)	Start from 7.50 Cent/Kwh, 1.5% escalation until year 12. Year 13 start 7.40 Cent/kwh, 1.5% escalation until year 25	25 years	60% USD and 40 % LAK (Year 1-12) after that 50%USD and 50% LAK	Base on actual Generation	100% to EDL	



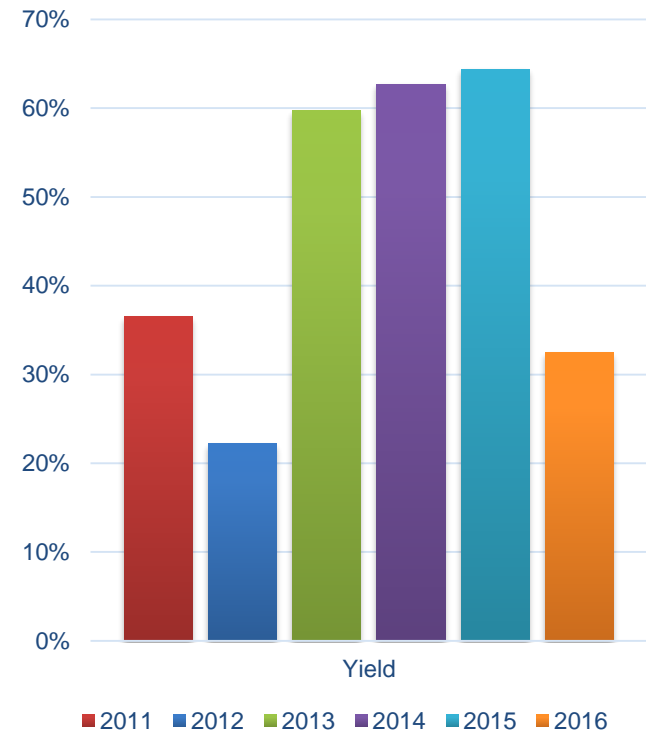
# Dividend history

## EDL-GEN

I. Company's name		EDL-Generation Public Company
1	Listing date	January 11, 2011
2	Listing capital (LAK)	6,717,214,788,000 LAK
3	No. of listed shares	1,679,303,697 shares
4	Floating shares	25%
5	Par value	4,000 LAK
6	Foreign limited	25%



II. Dividend history:	Ex-dividend	Record Date	Payment	before tax	after tax
1 2011 (first 06 month)	24/10/2011	25/10/2011	28/10/2011	177.97	160.17
2 2011 (last 06 months)	02/04/2012	03/04/2012	09/04/2012	320.00	288.00
<b>Total 2011:</b>					<b>448.17</b>
3 2012 (first 06 months)	21/08/2012	22/08/2012	31/08/2012	170.00	153.00
4 2012 (last 06 months)	05/04/2013	08/04/2013	25/04/2013	280.00	252.00
<b>Total 2012:</b>					<b>405.00</b>
5 2013 (first 06 months)	30/08/2013	02/09/2013	09/09/2013	-	182.00
6 2013 (last 06 months)	08/04/2014	10/04/2014	30/04/2014	-	293.00
<b>Total 2013:</b>					<b>475.00</b>
7 2014 (first 06 months)	26/09/2014	28/09/2014	10/10/2014	-	182.00
8 2014 (Last 06 month)	24/04/2015	27/04/2015	05/05/2015	-	268.00
<b>Total 2014:</b>					<b>450.00</b>
9 2015 (first 06 months)	08/10/2015	09/10/2015	16/10/2015	-	110.00
10 2015 (last 06 month)	18/04/2016	19/04/2016	6/5/2016	-	150.00
<b>Total 2015:</b>					<b>260.00</b>
11 2016 (first 06 months)	14/9/2016	15/9/2016	29/9/2016	-	130.00
12 2016 (last 06 month)	11/4/2017	12/4/2017	28/4/2017	-	160.00
<b>Total 2016:</b>					<b>290.00</b>

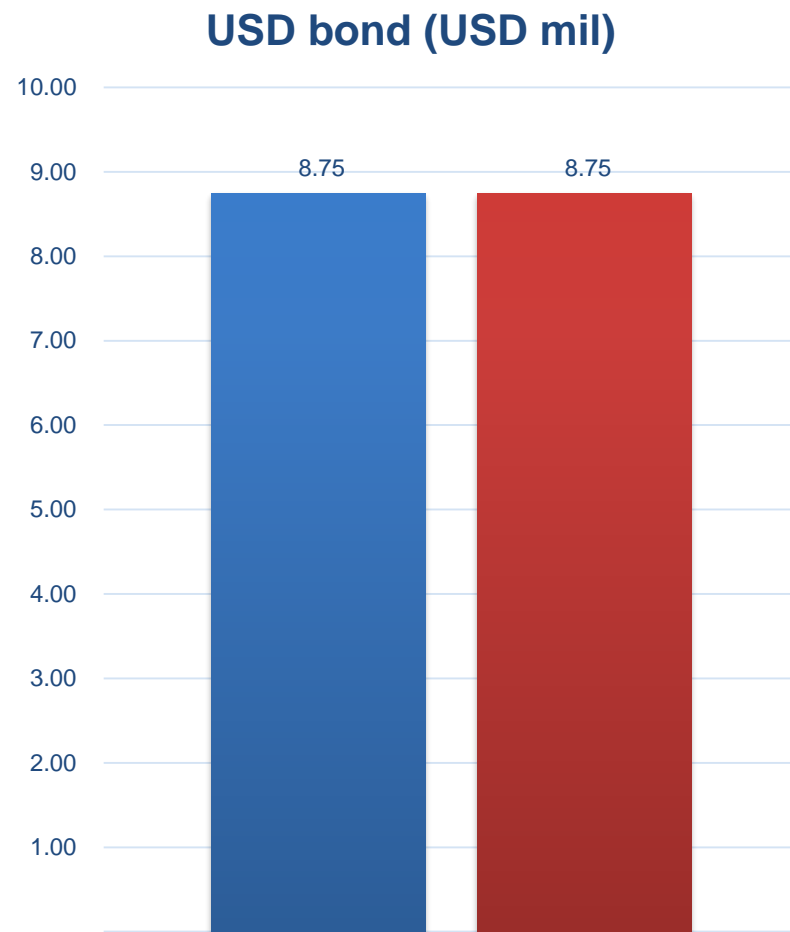
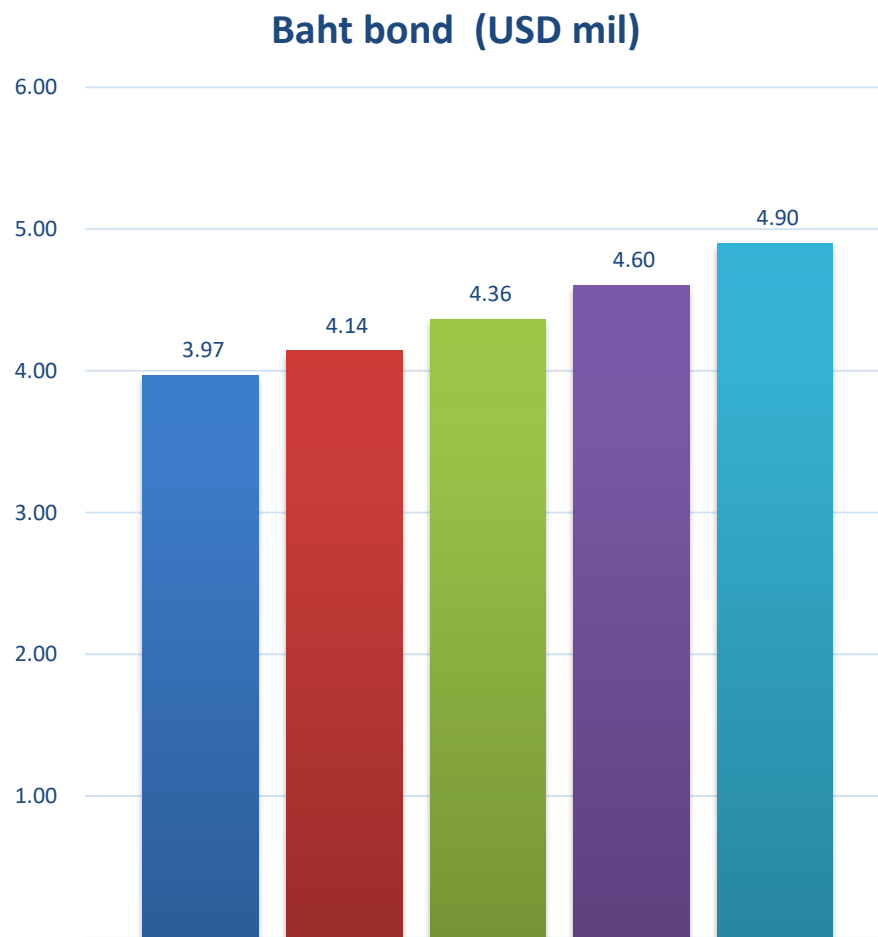


	2011	2012	2013	2014	2015	2016
Purchase Price	4,300	4,300	4,300	4,300	4,300	4,300
Average price	5,423	4,851	6,394	6,546	6,809	5,408
Gain/loss	1,123	551	2,094	2,246	2,509	1,108
Dividend after tax	448	405	475	450	260	290
Total gain	1,571	956	2,569	2,696	2,769	1,398
Yield	37%	22%	60%	63%	64%	33%

Current price as of 24/8/2017



## Bond interest (every 6 months) /repayment history



Current price as of 24/8/2017