



Greater Mekong Sub Region (GMS)
**27th meeting of the Regional Power Trade
Coordination Committee (RPTCC-27)**



(Online Meeting)

Country Report

15th October 2020, Vientiane Capital, Lao PDR

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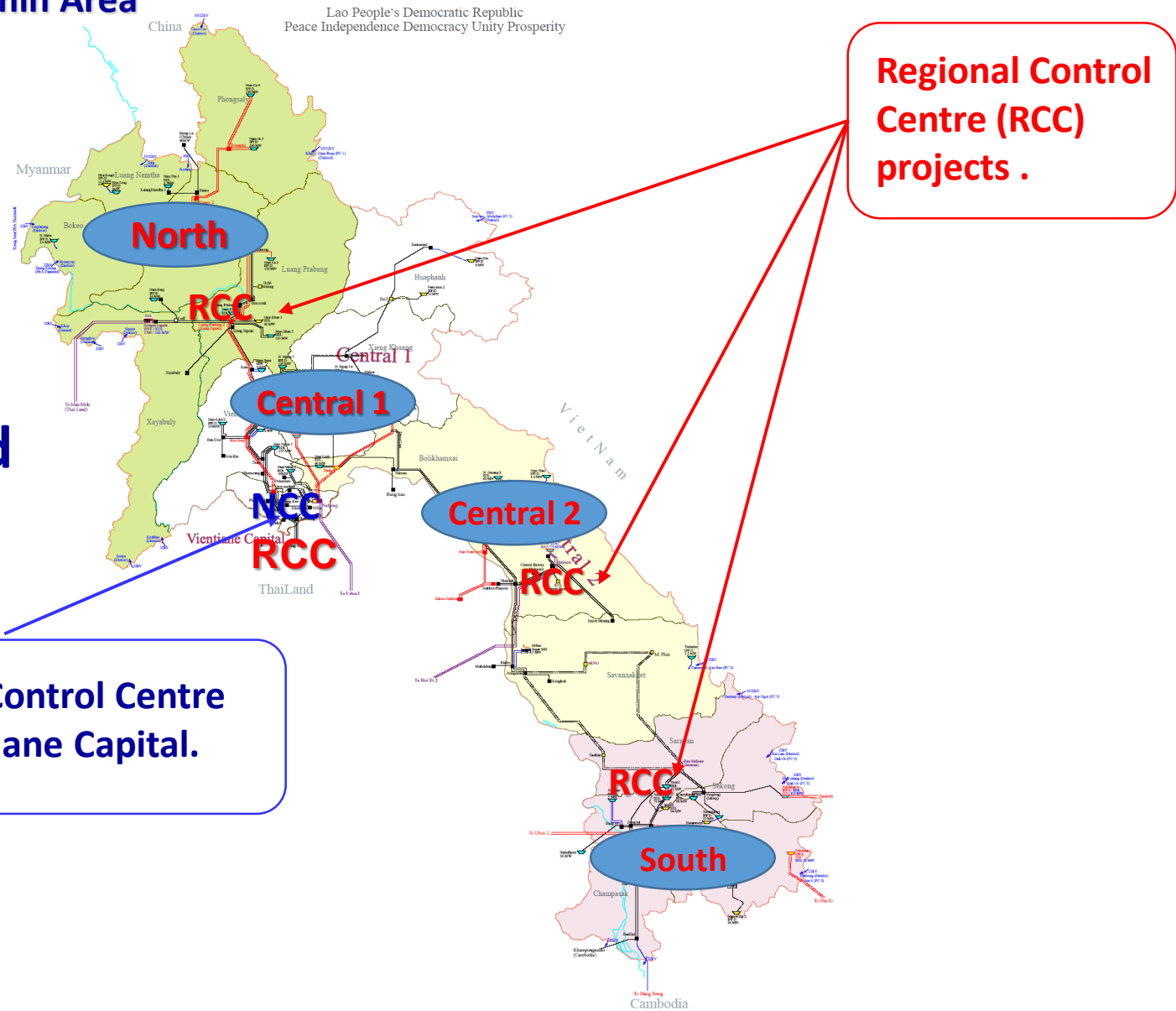
1. Present Status

- Grid System and Control/Admin Area

There are Four (4) control/Admin.

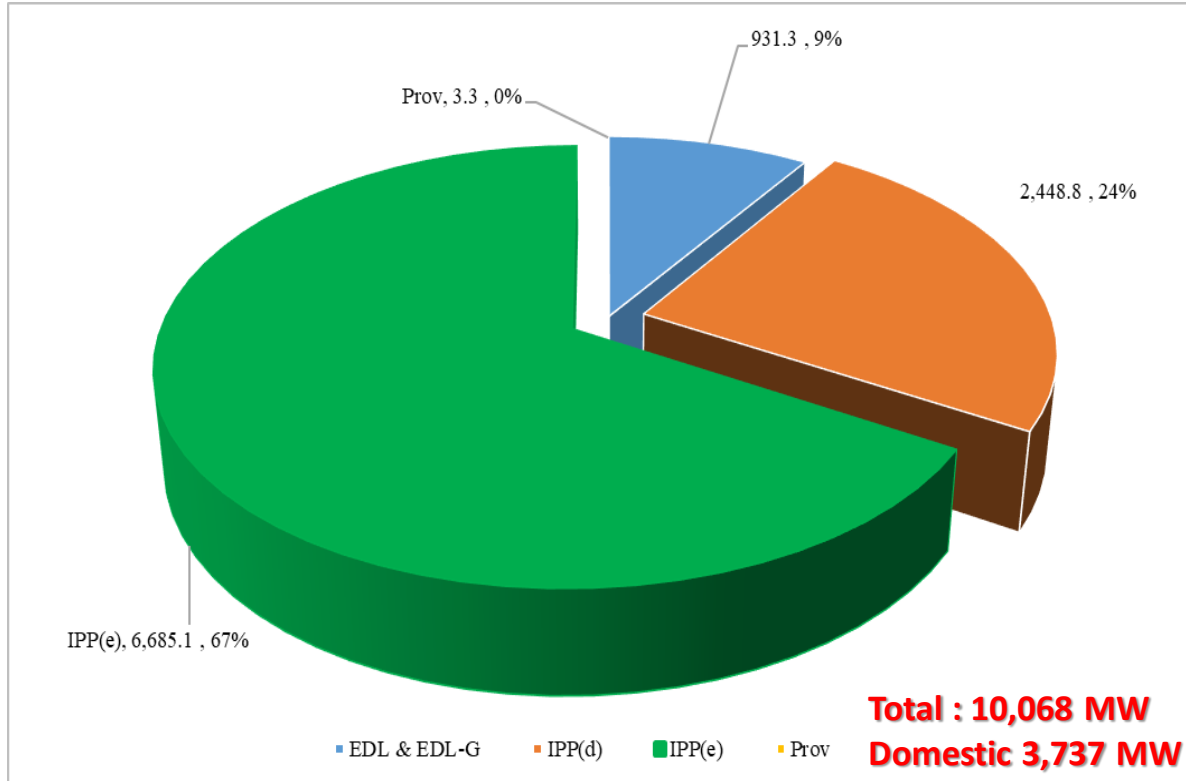
- North (N),
- Central1 (C1),
- Central2 (C2) and
- South (S)

The National Control Centre (NCC) in Vientiane Capital.

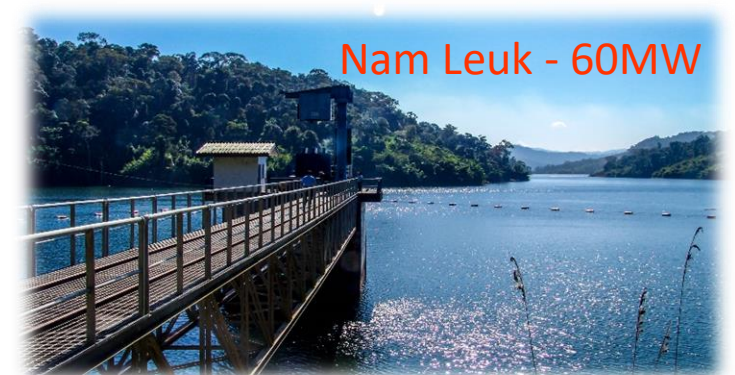
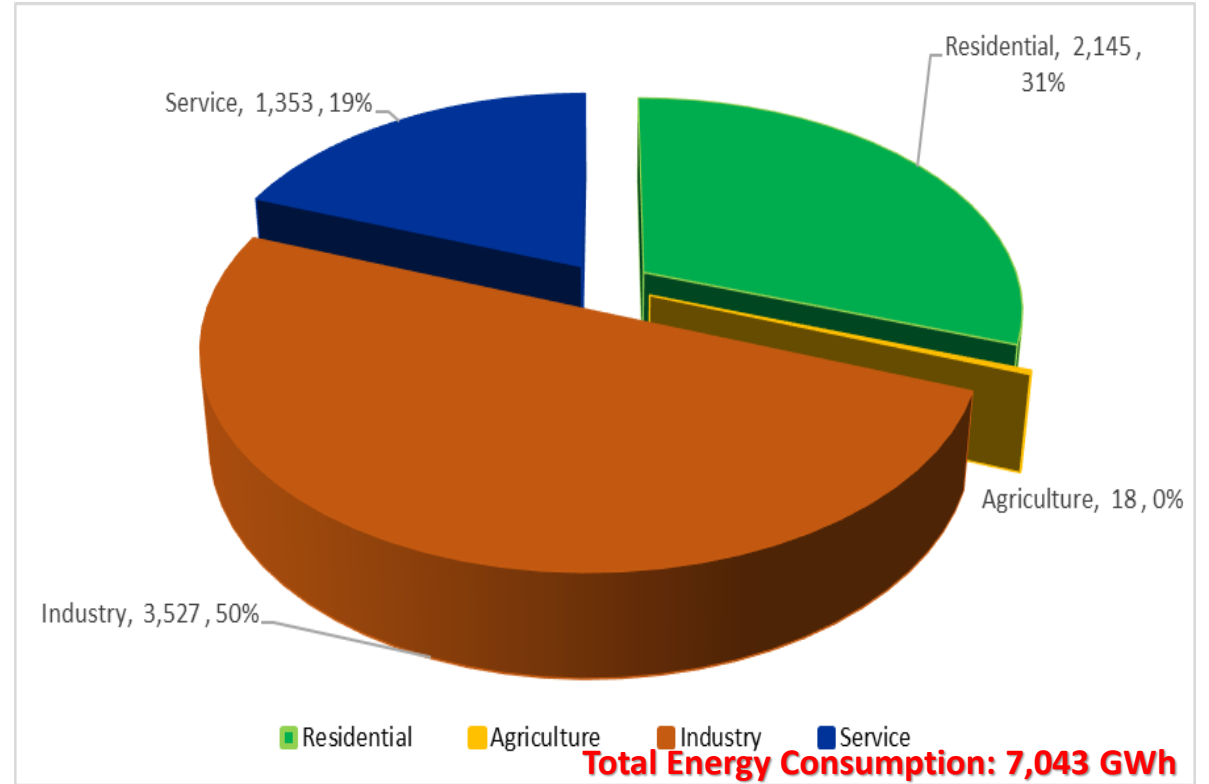


1. Present Status

■ Total Installed Capacity in 2020 (MW)

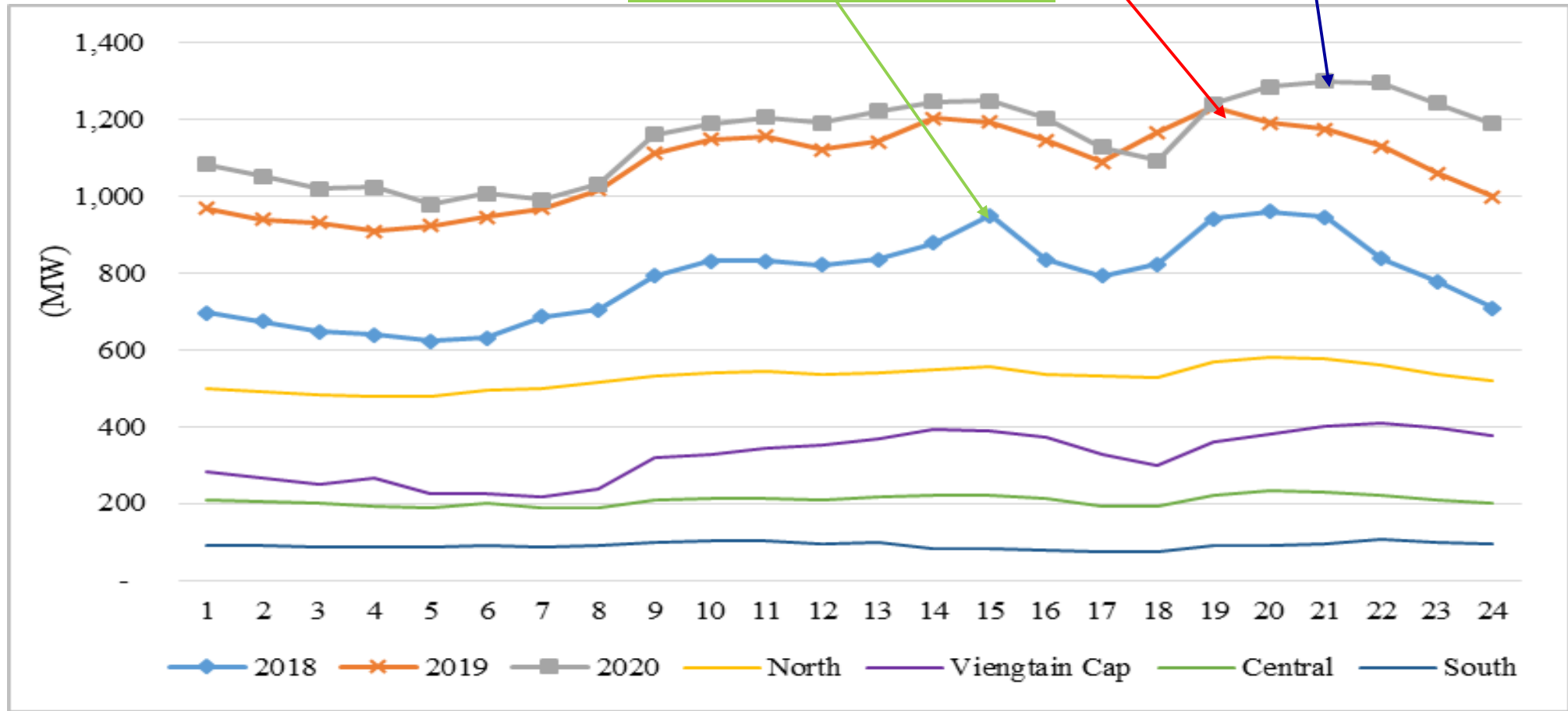


■ Annual Energy Consumption By Sector, 2019 (GWh)



1. Present Status

- Daily Peak Demand in 4 Regions and Whole



System Peak Demand in 4 Regions and Whole the country 1299 MW @ 06 May 2020

1. Present Status

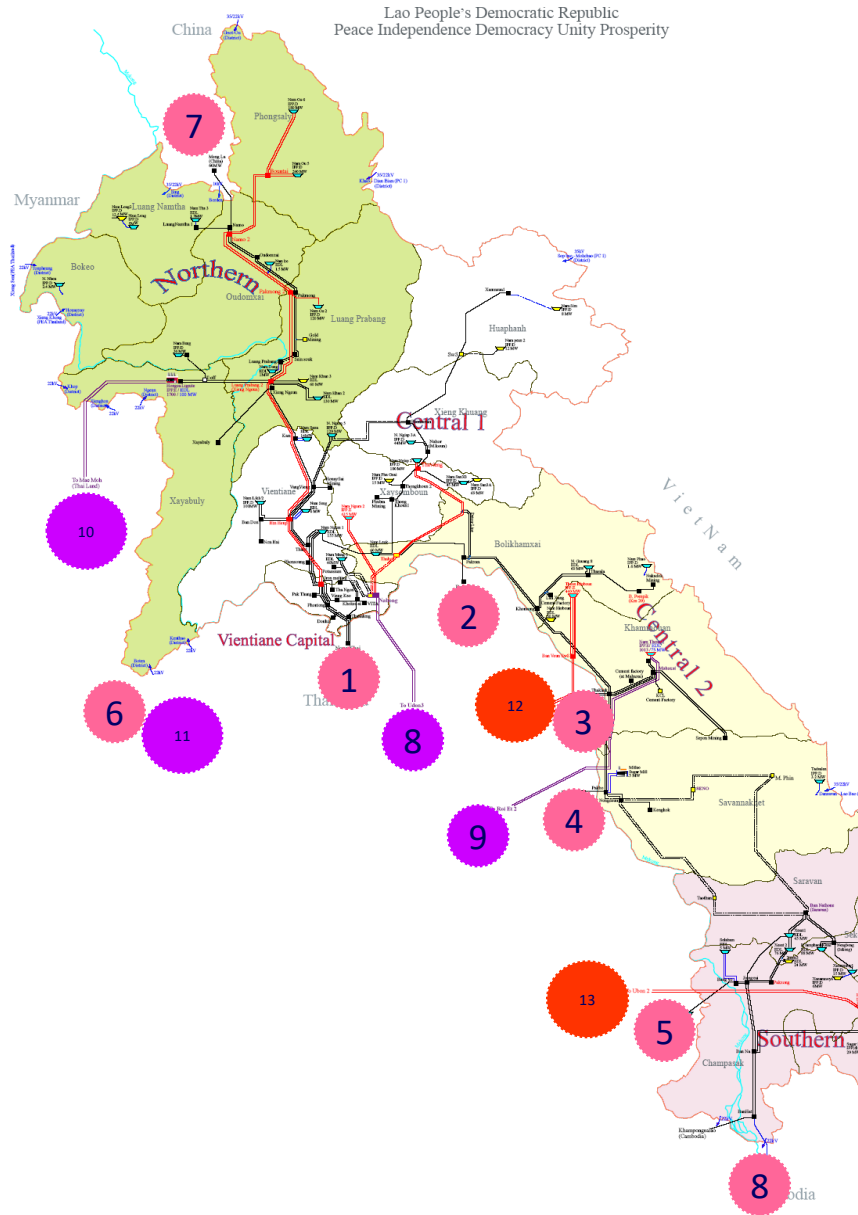
- EDL's Transmission Line and Substation Facilities in 2020 (as of May)

Regional	230/115/22 kV			115/22 kV		
	Transmission Line (cct-km)	Substations (Unit)	TR Capacity (MVA)	Transmission Line (cct-km)	Substations (Unit)	TR Capacity (MVA)
Northern	1,254	8	2040	3,069	31	8,445
Vientiane Capital	184	2	600	281	7	722
Central	548	2	300	2,562	11	482
Southern	74	-	-	1,332	10	413
Whole Country	2,060	12	2,940	6,336	59	2,461



1. Present Status

- Power Exchange Via Existing Line 115 kV and Power export from IPP,E



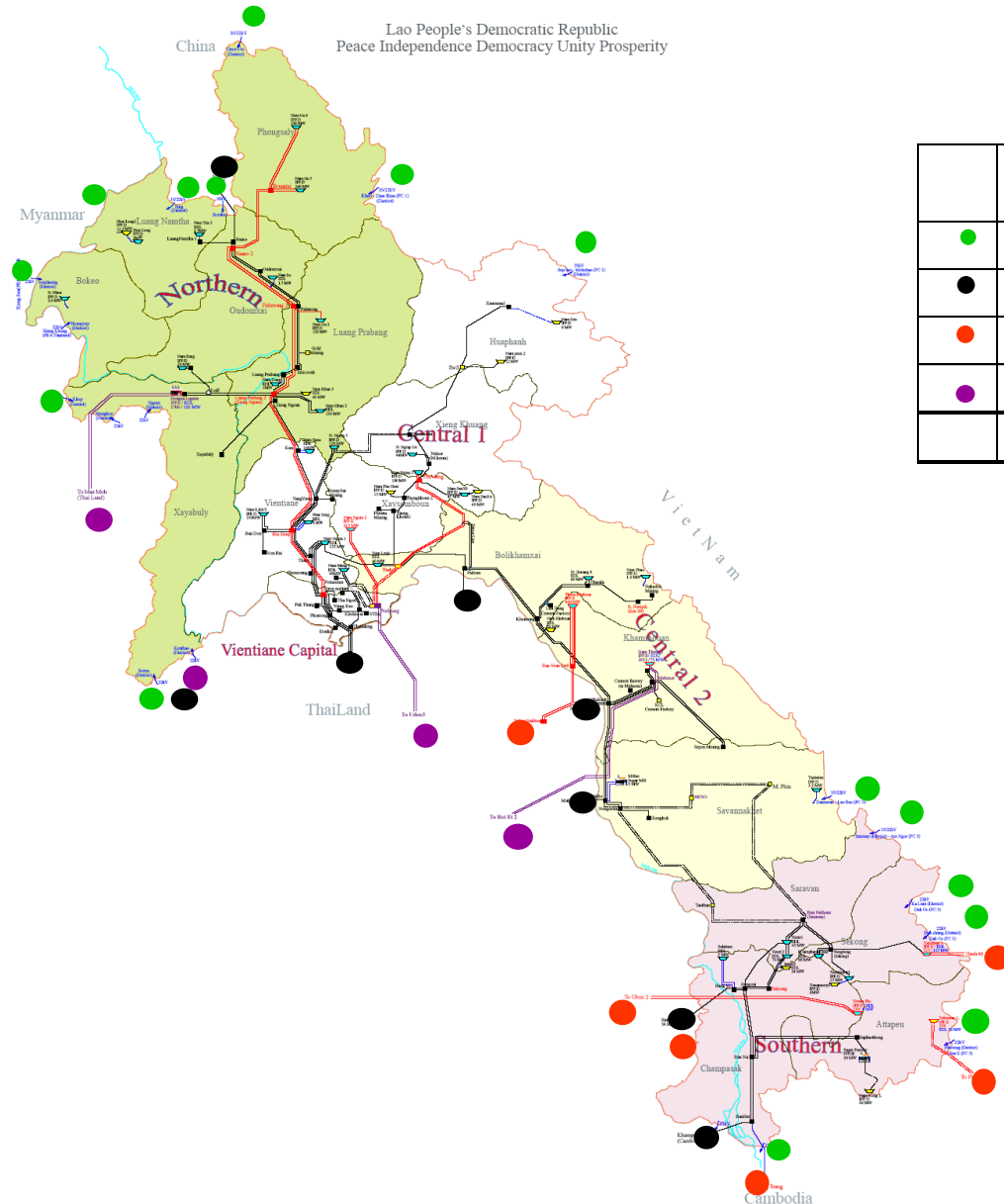
No.	Projects List	Voltage (kV)	No. of Circuit	Conductor size (Sq.mm)	Owner
	Transmission Line (From - To)				
1	Vientiane - Nong Khai (Thai)	115	3	ACSR 240	EDL
2	Pakxan - Bueng Kan (Thai)	115	1	ACSR 240	EDL
3	Thakhek - Nakhon Phanom (Thai)	115	2	ACCC 325	EDL
4	Savannakhet - Mukdahan 2 (Thai)	115	1	ACSR 240	EDL
5	Bang Yo – Sirindhorn (Thai)	115	1	ACSR 240	EDL
6	Paklay – Thali (Thai)	115	1	ACSR 240	EDL
7	NaMo – MengLa (China)	110	1	ACSR 185	EDL
8	Ban Hat - Khamponsalao(Cambodia)	115	1	ACSR 240	EDL
8	Na Bong – UdonThani 3 (Thai)	500	2	ACSR	IPP, E
9	NamTheun 2 – RoiEt 2 (Thai)	500	2	ACSR	IPP, E
10	Hongsa – MaeMoh (Thai)	500	2	ACSR	IPP, E
11	M. Xayabuly – Thali (Thai)	500	2	ACSR	IPP, E
12	Thakhek – Nakhon Phamom 2 (Thai)	230	2	ACSR	IPP, E
13	HouayHo – UbonRachaThani 2 (Thai)	230	2	ACSR	IPP, E
14	Xekaman 3 – Thanmy (Vietnam)	220	2	ACSR	IPP, E
15	Xekaman 1 – Pleiku (Vietnam)	220	2	ACSR	IPP, E

115kV – Exchange
 230kV – Purely Export
 500kV – Purely Export

Legend : 115 kV 
 230 kV 
 500 kV 

1. Present Status

- Existing Grid System and cross – border interconnection



	Voltage Level	EDC	EVN	CSG	Myanmar	Thailand		Total
						EGAT	PEA	
●	22/35 kV	1 Exp	5 Imp	3 Imp	1 Exp		3 Imp	18
●	115 kV	1 Exp		1 Imp		5 Exc		7
●	230 kV	1 Exp	2 Exp			3 Exp		6
●	500 kV					4 Exp		4
	Total	3	9	4	1	12	6	35

Remarks:

- 22/35kV – Import or Export
- 115kV – Exchange
- 230kV – Purely Export
- 500kV – Purely Export

Legend :

115 kV	
230 kV	
500 kV	

2. Power Trade with Neighboring Countries

1. Power Trade with Thailand

The 2 government has been signed MOUs in September 2016 agreed to export power 9,000 MW.

- ✓ 8 Projects has been COD with total capacity 5,409 MW
- ✓ 2 Projects under construction and PPA negotiation with total capacity 1,080 MW.

2. Power Trade with Vietnam

The two governments has MOU signed to continuous upgrade the cooperation on hydropower projects development in Vientiane on 5 October 2016 agreed to export power 5,000 MW from 2020-2030.

- ✓ 3 projects has been COD with total capacity 572 MW.
- ✓ 9 Projects under construction and PPA negotiation more than 839 MW.

3. Power Trade with Cambodia

- ✓ 115 kV Existing with exporting 20 MW and the end of this year will be increased to 70 and 120 MW.
- ✓ EDL – EDC PPA, the 1st phase to export 195 MW to EDC, COD 7th Jan Y2020 with, energy 1,521 GWh/year, Built TL 500 kV structure the first stage energize by 230 kV. And the 2nd phase from 2020 to 2023 power export 500 MW.
- ✓ 2 IPP Projects 2,400 MW.

■

2. Power Trade with Neighboring Countries

4. Power Trade with Myanmar

- ✓ Existing 22 kV from M. Long, Laos – Kenlat, export 3 MW
- **Progress of the cooperation**
 - ✓ Under Study to export power from Laos by 66 kV or 115 kV from Ban Ton Pheung to Thachilek Myanmar.
 - ✓ Long term, Laos to export power up to 300 MW, via 230 kV or 500 kV TL (Under study by ADB).

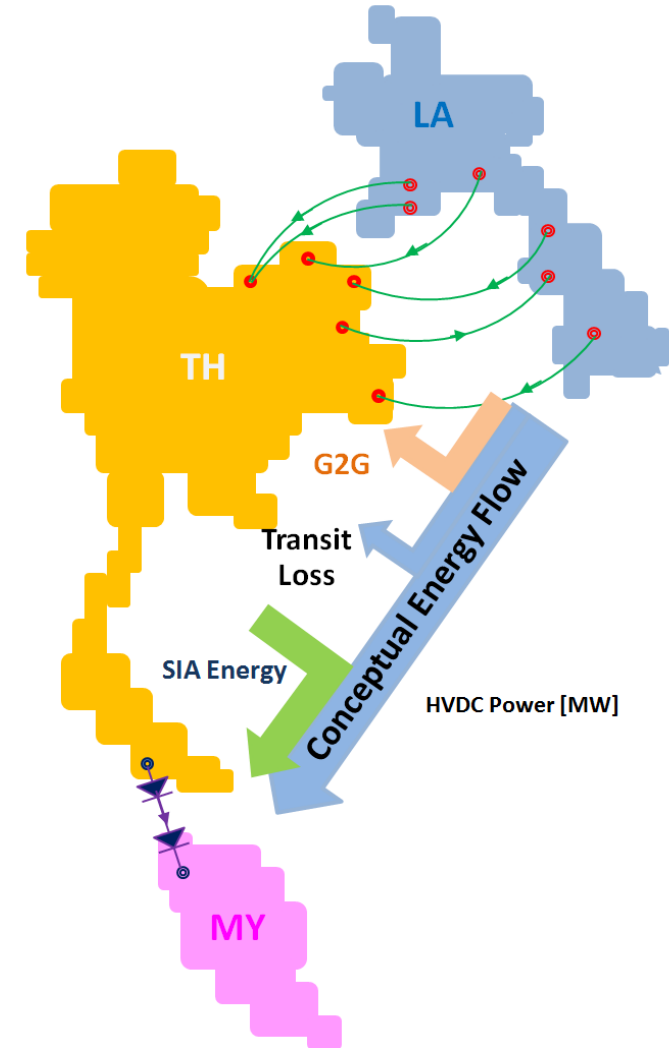
5. Power Trade with China.

- ✓ Existing 115 kV, import from China max. 60 MW

2. Power Trade with Neighboring Countries

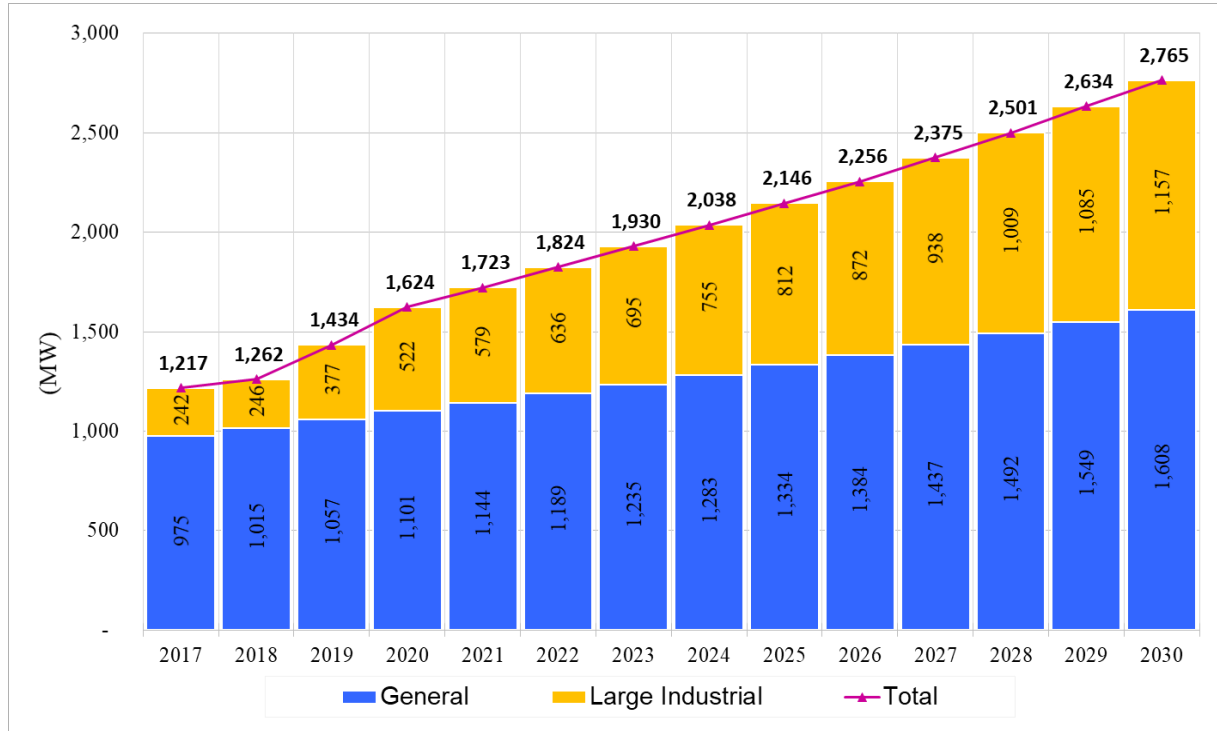
6. Multilateral Power Trade LTM-PIP Project

- Malaysia , Thailand and Laos signed MOU at AMEM, Myanmar, 21 September 2016. The MOU will facilitate multilateral cross-border power trade up to 100 MW through Thailand.
- Phase I: Project have been started on January 2018 until 31 December 2019, there were 30.25 GWh has been transacted via the LTM project.
- Phase II: The agreement purchase of power up to 300 MW for period of 2 years from 1 January 2020 to 31 December 2021.

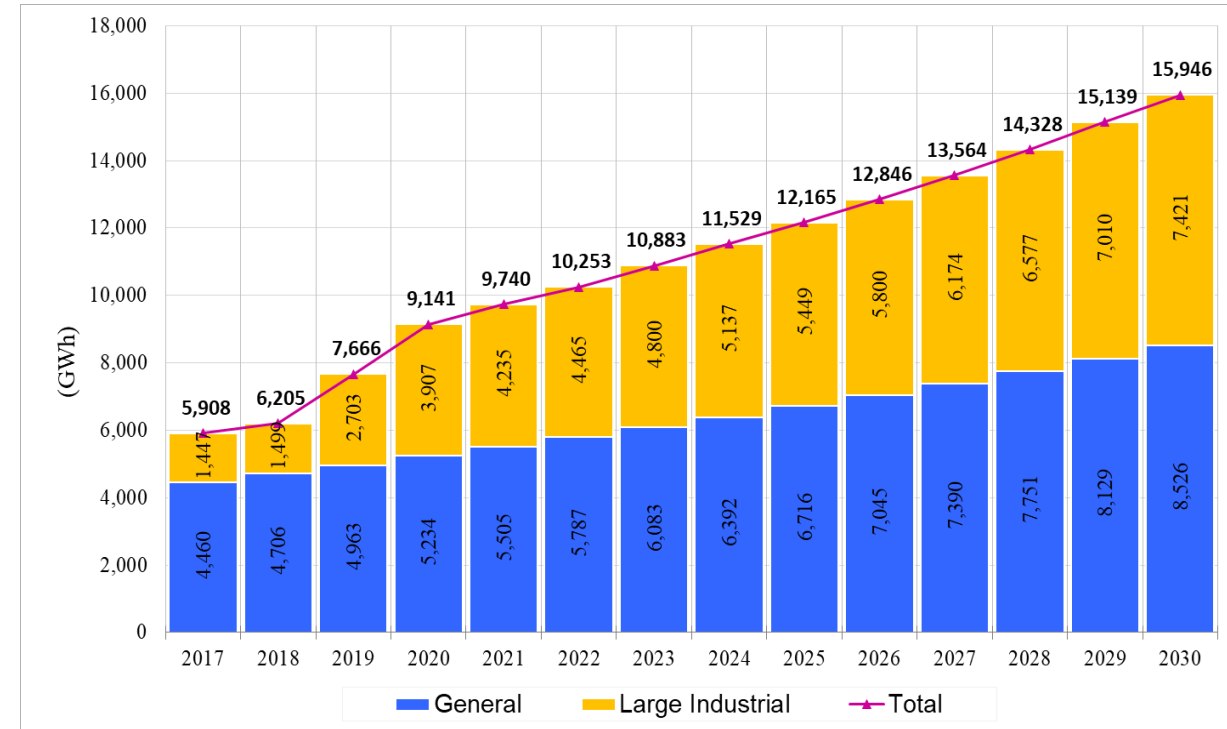


3. Long-term Power Development Plan

- Power Demand forecast for Whole Country (MW)



- Energy Demand Forecast for Whole Country (GWh)



Year	2017	2018	2020	2025	2030
Demand forecast (MW)	1,217	1,262	1,624	2,146	2,765

3. Long-term Power Development Plan

- Summary power demand from 2017-2030

No.	ລາຍລະອຽດ (Descriptions)	Units	ປະຈຸບັນ (Actual)		ຄາດຄະເນ (Forecast)				Growth Rate (%)		
			2017	2018	2019	2020	2025	2030	2017-2020	2017-2025	2017-2030
			1	ຄວາມຕ້ອງການ ພະລັງງານໄຟຟ້າ (ບໍ່ລວມຕົກເຮ່ຍໃນລະບົບ) Energy Demand (Excluding system losses)	(GWh)	5,360	5,633	7,030	8,440	11,294	14,876
2	ພະລັງງານຕົກເຮ່ຍໃນລະບົບ System Losses	(GWh) (%)	548 9.3%	572 9.2%	636 8.3%	700 7.7%	871 7.2%	1,070 6.7%			
3	ຄວາມຕ້ອງການ ພະລັງງານໄຟຟ້າ (ລວມຕົກເຮ່ຍໃນລະບົບ) Energy Demand (Including system losses)	(GWh)	5,908	6,205	7,666	9,141	12,165	15,946	15.7%	9.4%	5.7%
4	ຄວາມຕ້ອງການ ກຳລັງໄຟຟ້າສູງສຸດ Peak Load	(MW)	1,217	1,262	1,434	1,624	2,146	2,765	10.1%	7.3%	6.5%
5	Load Factor	(%)	55.4%	56.1%	61.0%	64.3%	64.7%	65.8%			
* ສະເລ່ຍເພີ່ມຂຶ້ນ ຕໍ່ປີ (Average Growth per Annum)									2017-2020	2017-2025	2017-2030
* ຄວາມຕ້ອງການ ພະລັງງານໄຟຟ້າ ບໍ່ລວມຕົກເຮ່ຍໃນລະບົບ (Energy Demand Excluding System Losses), GWh									1,027	742	732
* ຄວາມຕ້ອງການ ພະລັງງານໄຟຟ້າ ລວມຕົກເຮ່ຍໃນລະບົບ (Energy Demand Including System Losses), GWh									1,078	782	772
* ຄວາມຕ້ອງການ ກຳລັງໄຟຟ້າສູງສຸດ (Peak Load), MW									136	116	119

3. Long-term Power Development Plan

Transmission Line Project Under Construction and will be operate in 2020-2022

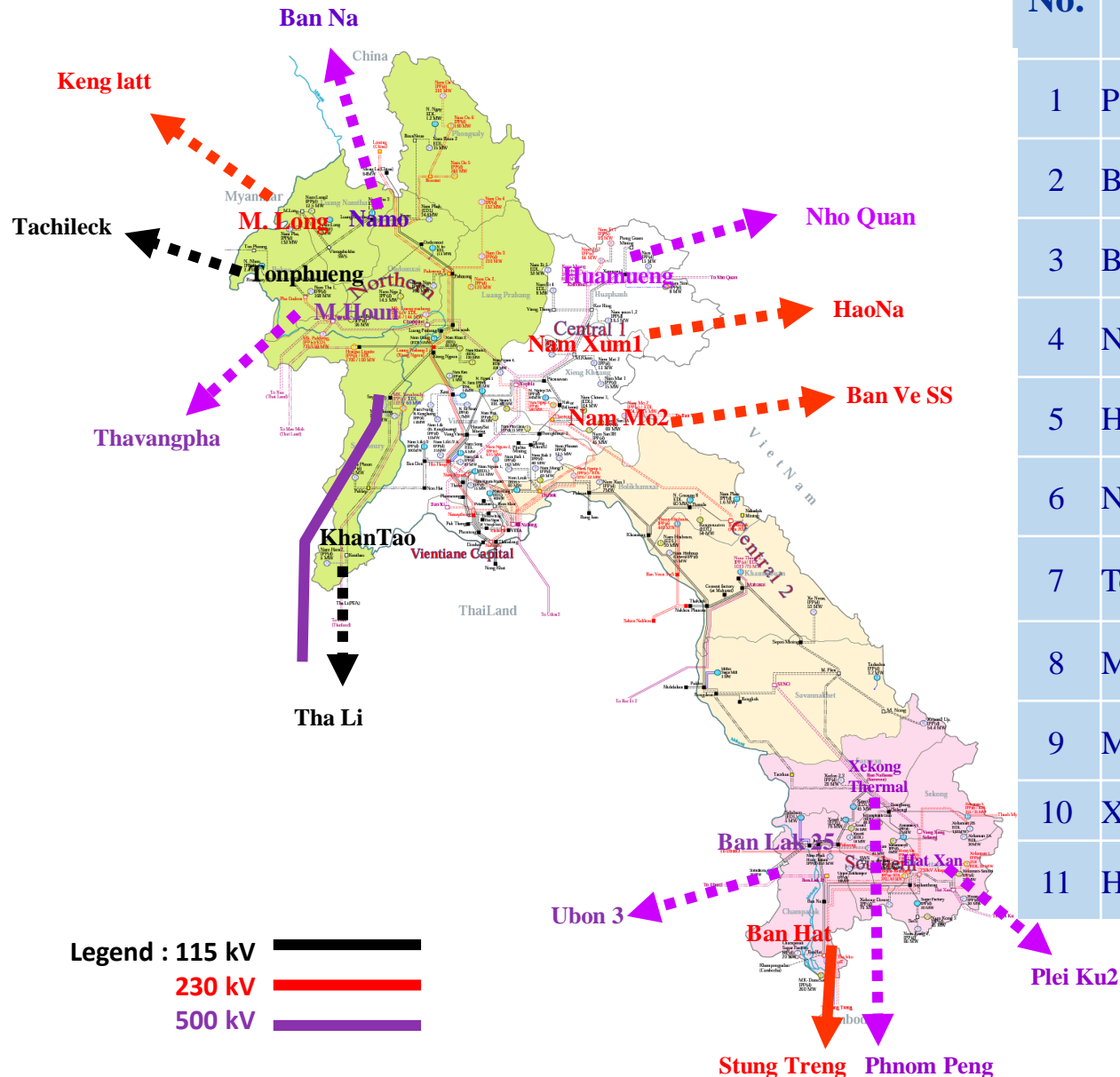
No.	Projects List	Voltage	No. of Circuit	Transmission Line Lenth	Conductor size	Province
	Transmission Line (From - To)	(kV)		(cct-km)	(Sq.mm)	
1	Naphia S/S– Phialat Xiengkhuang-Vientiane S/S	500	2	186	ACSR 630	Xiengkhuang
2	Banhat S/S – Cambodia border	500	2	29	ACSR 410	Champasack
3	Xienghong S/S- Viengkeo 2 S/S	115	2	61	ACSR 240	Phongsaly
4	Bandon - Nonhai S/S	115	2	53	ACSR 240	Phongsaly

Substation Project Under Construction and will be operate in 2020-2022




No.	Projects List	Capacity (MVA)		Province	Connection point
		230/115 kV	115/22 kV		
1	115/22 kV M. Khoua S/S		30	Phongsaly	115/22 kV Oudomxai S/S
2	115/22 kV Kenthao S/S		30	Sayabuly	115/22 kV Paklay S/S
3	115/22 kV Nahai S/S		50	VT Cap	230/115/22 kV Donphousi S/S
4	500/230/22 kV Naphai S/S	200	50	XiengKhuang	500/230/22 kV Phailat S/S
5	500/230/22 kV Phialat S/S	200	50	VT Cap	500/230/22 kV Naphia S/S
6	230/115/22 kV Xantai S/S	200	50	Huaphanh	
7	230/115/22 kV Donphousi S/S	200	50	VT Cap	
8	230/22 kV Ban Hat S/S	200	50	Champasack	
Total		1000	410		

4. Transmission Interconnection Plan

Plan cross – border interconnection



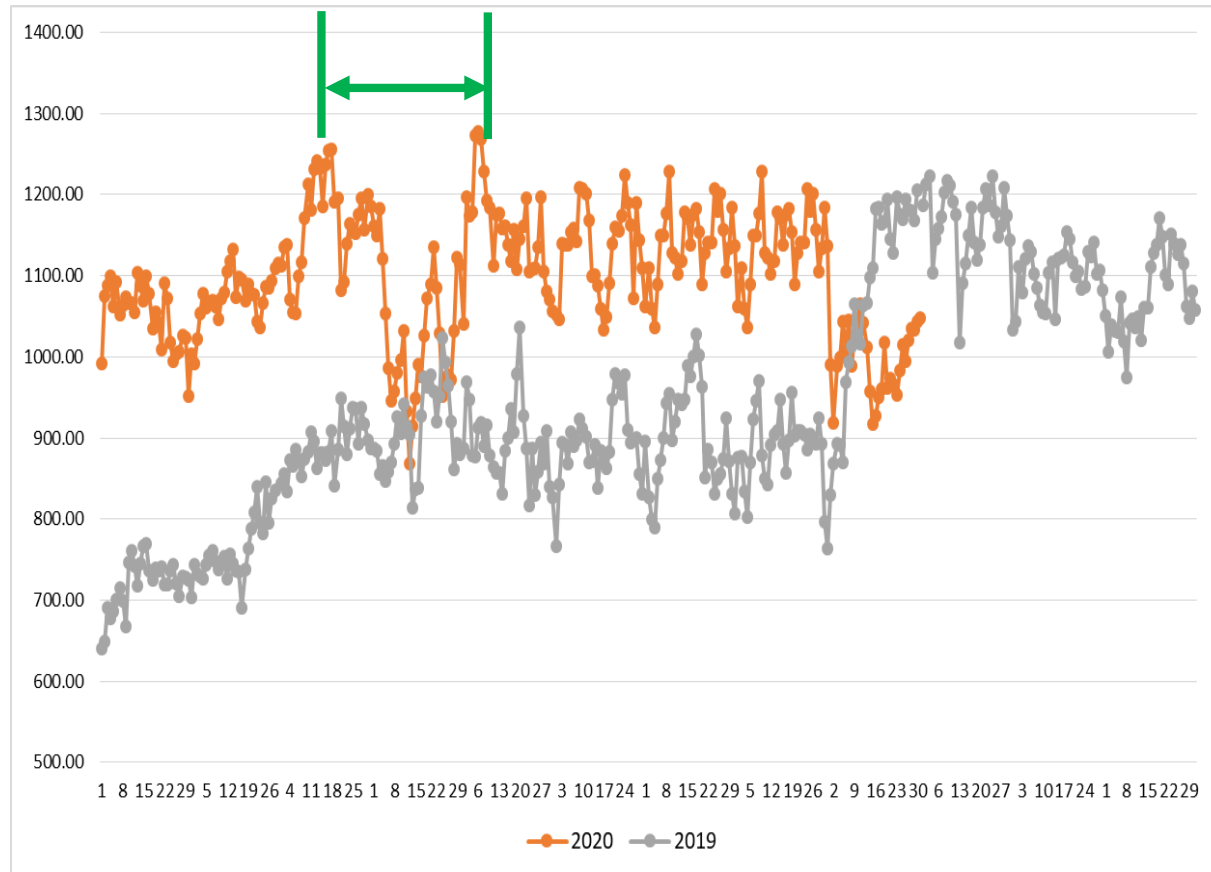
No.	Projects		Voltage (kV)	Region	Progress	Owner
	From	To				
1	Paklay	Tha li (Thailand)	115	North	Under Construction	EDL
2	Ban Hat	Stung Treng (Cambodia)	230	South	Under Construction	EDL
3	Ban Lak 25	Ubon 3 (Thailand)	500	South	Under Construction	IPP(e)
4	Na Mo	Ban Na, (China)	500	North	Planned	EDL
5	Hat Xan	Plei ku (Vietnam)	500	South	Planned	EDL
6	NamMo2	Ban Ve (Vietnam)	230	Central 1	Planned	IPP(e)
7	Ton Pheung	Tachileck (Myanmar)	66	North	Study	EDL
8	Muang Houn	Nan 2 (Thailand)	500	North	Planned	EDL
9	M. Long	Kenglatt (Myanmar)	230	North	Study (by ADB)	EDL
10	Xekong	Phanompeng	500	South	FS	IPP(e)
11	Huamueng	Nho Guan or Thang Hoa	500	North	Planned	EDL

Legend : 115 kV 
 230 kV 
 500 kV 

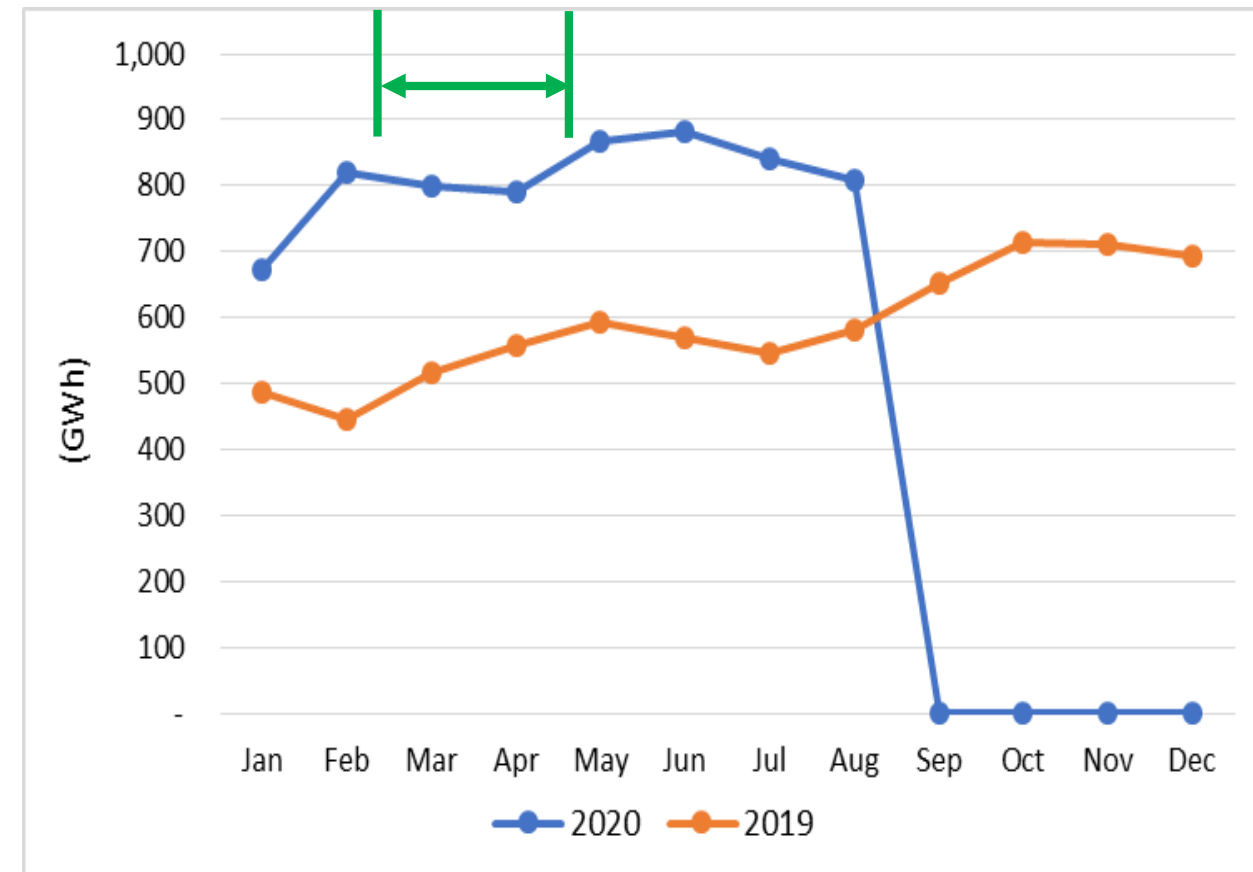
5. Impact of Covid-19 on power sector

- **Power Demand Comparison during government lockdown from March to April 2020**

- **Power Demand Comparison during government lockdown from March to April (MW)**



- **Energy Consumption Comparison during government lockdown from March to April (MW)**



Thank you
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