



**STAKEHOLDER'S FORUM**  
**NAGA CITY POWER COMMISSION**

**Avenue Plaza Hotel**

**August 23, 2014**

# OUTLINE OF PRESENTATION

- Philippine Energy Outlook
- Casureco II Coverage Area Energy Outlook
- Power Supply Contract Status
- Substation Capacity Status
- Distribution Line Plans and Cost Estimates





# PHILIPPINE ENERGY OUTLOOK

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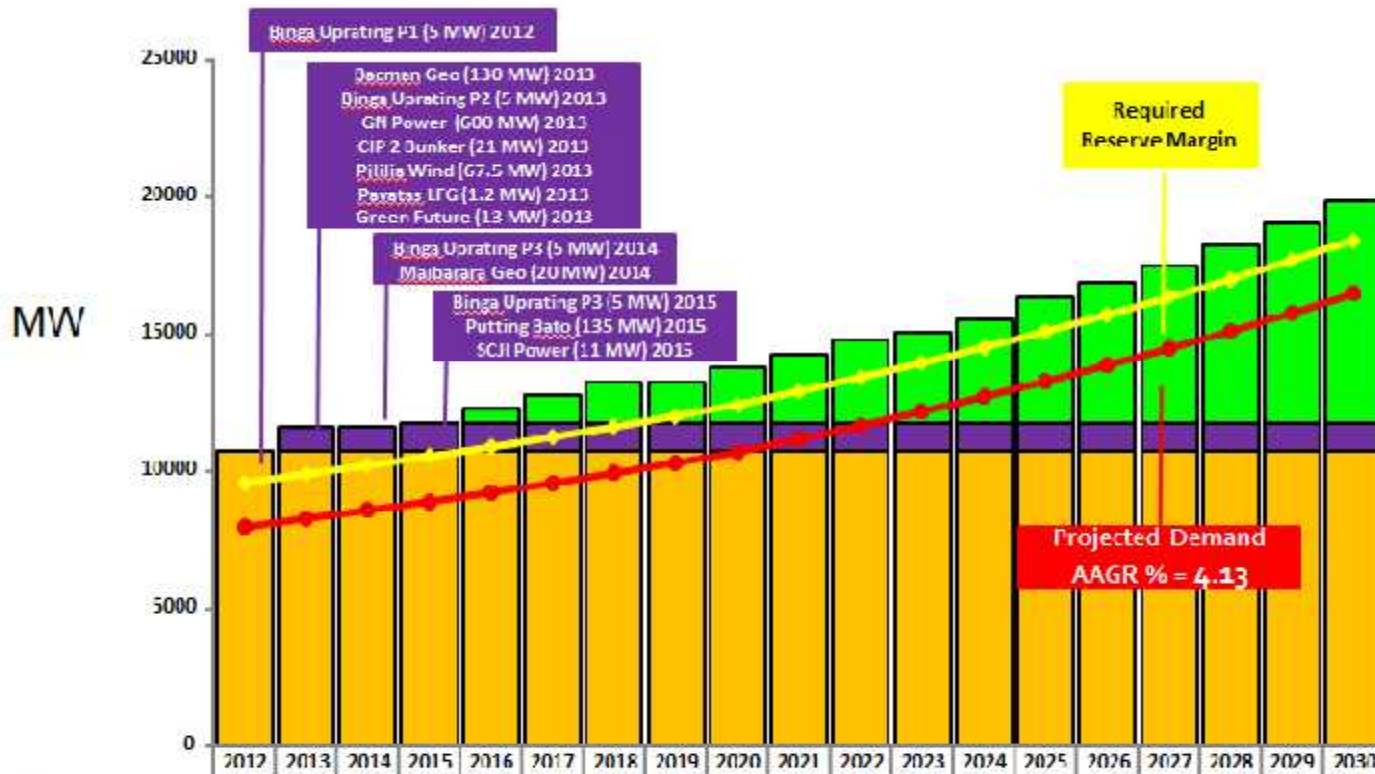
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## 2014-2020 DOE ENERGY PROJECTIONS

- In early 2012, the DOE released its Draft Energy Outlook for the period 2014 until 2020.
- Electricity demand in Luzon grid is projected to increase at an average annual growth rate (AAGR) of 4.13 percent, from 7,969 MW in 2012 to 10,693 MW in 2020 and will increase further to 16,477 MW in 2030.
- The initial outlook projected that the Luzon grid will have sufficient supply for the years 2014-2015.



# 2012-2020 ENERGY OUTLOOK



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Required Additional Capacity					500	500	500		500	500	500	300	500	800	500	600	800	800	800
Committed Capacity	5	838	25	151															
Existing/Committed Capacity	10744	10749	11587	11612	11763	11763	11763	11753	11763	1763	11763	11763	11763	10744	11763	11763	11763	11763	11763
Required Reserve Margin	1613	1625	1637	1650	1563	1677	1691	1706	1722	1741	1760	1781	1802	1825	1848	1873	1898	1925	1953
Peak Demand Forecast	7969	8275	8575	8892	9217	9567	9929	10304	10693	11165	11659	12174	12712	13274	13860	14473	15112	15780	16477



## 2014-2020 DOE ENERGY PROJECTIONS

- However, in February 2014, the DOE released an updated Draft Power Outlook for the year 2014-2020.
- The projected 4.3% growth rate no longer stands.
- The latest draft outlook of the Energy Department assumes a 4.2 peak demand gross domestic product growth rate and a 7% growth rate in Luzon for 2014 and 2015, and an 8% growth rate for 2016 to 2020.
- There is an almost 3% difference in the initial estimate as against the latest draft.



## 2015 ENERGY OUTLOOK

- Due to the said increase, the Luzon grid is looking at a 200 MW deficit for the year 2015.
- The summer months of March to May will be needing more than that, an approximately 400-500 MW to avoid load shedding.
- If this demand is not reached, the shortage can affect around 700,000 households in Metro Manila and nearby provinces.
- The maximum demand for power next year is seen hitting 9,017 megawatts (MW) and will be nearing the current supply level of 10,000 MW.
- By 2015, the DOE expects electricity demand to breach supply by 184 MW in the summer months unless power plants in the pipeline are completed.



## 2015 ENERGY OUTLOOK

- Based on the Luzon supply-demand outlook for 2014-2016, a yellow alert will be issued mid-March 2015, while the region will be on red alert in the entire month of April. A yellow alert will issued in May.
- A yellow alert means that contingency reserves are below the minimum level set by regulators, but there are no blackouts.
- A red alert means contingency for load shedding/rotation blackouts are to be implemented.
- Luzon was placed on yellow alert 5 times from January to June this year and 3 times on red alert from May to June this year.





# WHAT IS THE GOVERNMENT'S CONTINGENCY PLAN?

- Per DOE directive, no power plants will be allowed to schedule their maintenance shutdown during the summer of 2015 to prevent shortage and power outages.
- The Malampaya natural gas facility, which produces gas to supply three power plants in Luzon, is scheduled to go offline for maintenance from March 15 to April 14, 2015.
- Meralco is proposing to move the scheduled maintenance to an earlier month – January.



## WHAT IS THE GOVERNMENT'S CONTINGENCY PLAN?

- DOE Secretary Jericho Petilla has proposed contracting additional capacity from power generators and give the President emergency powers to build power plants.
- The department is currently in talks to lease additional power capacity from First Gen Corporation from its Avion power plant in Batangas City.
- In case this materializes, there will be no need to invoke emergency powers for the President.



# WHAT IS THE GOVERNMENT'S CONTINGENCY PLAN?

- In July 2014, Sec. Petilla suggested the granting of emergency power to President Aquino to allow the government to build power plants.
- EPIRA prohibits the government from putting up power plants. However, Section 71 of the law states that the President, upon determination of an imminent shortage of supply of electricity, may ask Congress for authority to establish additional generating capacity under approved terms and conditions.



# WHAT IS THE GOVERNMENT'S CONTINGENCY PLAN?

- Aside from contracting additional capacity, Petilla has also proposed the Interruptible Load Program (ILP), in which commercial establishments with large energy loads will be asked to use their own generator sets if needed.
- Targeted ILP participants are those with large embedded generation capacities such as malls, large business establishments, and factories. Among those that have signed an agreement on ILP with Meralco include Megaworld, Ayala Land, Robinsons Land, Shangri-La Malls, SM Prime Holdings, Metro Gaisano, and Waltermart.



# WHAT IS THE GOVERNMENT'S CONTINGENCY PLAN?

- The government is also counting on the on-time commissioning of several power plans financed by private sectors to augment the demand requirements of the Luzon grid.
- There are already committed plants to go online for 2014 and 2015.
- However, among the 11 committed plants, only 8 plants can optimistically operate by 2015 and at a reduced capacity.
- From the original projected additional capacity of 1,149.4 MW, this has now gone down to 511.3 MW.
- If all of these additional capacity goes online as scheduled, it will be able to cover the 500 MW supply deficit.



## PLANTS FOR COMMISSIONING - 2014

Company	Plant Type	Capacity	Location
PetroEnergy Resources Corp	Geothermal Plant	20 MW	Sto. Tomas, Batangas
Trans Asia-Oil and Energy Development Corp	Coal Plant	135 MW	Calaca, Batangas
Alternergy Wind One Corp	Wind Farm	67.5 MW	Pililia, Rizal
First Gen Corp	Natural Gas	100 MW	Sta. Rita, Batangas
DMCI Power Corp	Coal Plant	150 MW	Calaca, Batangas
Energy World Corp	Combined Cycle Gas Plant	200 MW	Pagbilao, Quezon
<b>TOTAL</b>		<b>672.5 MW</b>	



## PLANTS FOR COMMISSIONING - 2015

Company	Plant Type	Capacity	Location
Trans Asia	Coal	135 MW	Puting Bato
DMCI Power	Coal	150 MW	South Luzon
Energy World	Natural Gas	200 MW	Pagbilao, Quezon
San Jose City Power Corp	Biomass	9.9 MW	San Jose, Nueva Ecija
Isabela Biomass Energy Corp	Biomass	20 MW	Isabela
<b>TOTAL</b>		<b>476.9 MW</b>	



## COMMITTED PLANTS - 2015

- 87 MW Burgos wind project scheduled to commence in February
- 81 MW Caparispisan and 150 MW SLPGC coal unit 2, both in March
- 12 MW SJCI biomass Unit 2 in April
- 18 MW IBEC biomass in May
- 10.8 MW Green biomass and 13.2 MW Sabangan hydroelectric in August
- 67.5 MW Pililia wind in September
- 100 MW Avion in October
- 135 MW Puting Bato unit 2 in November





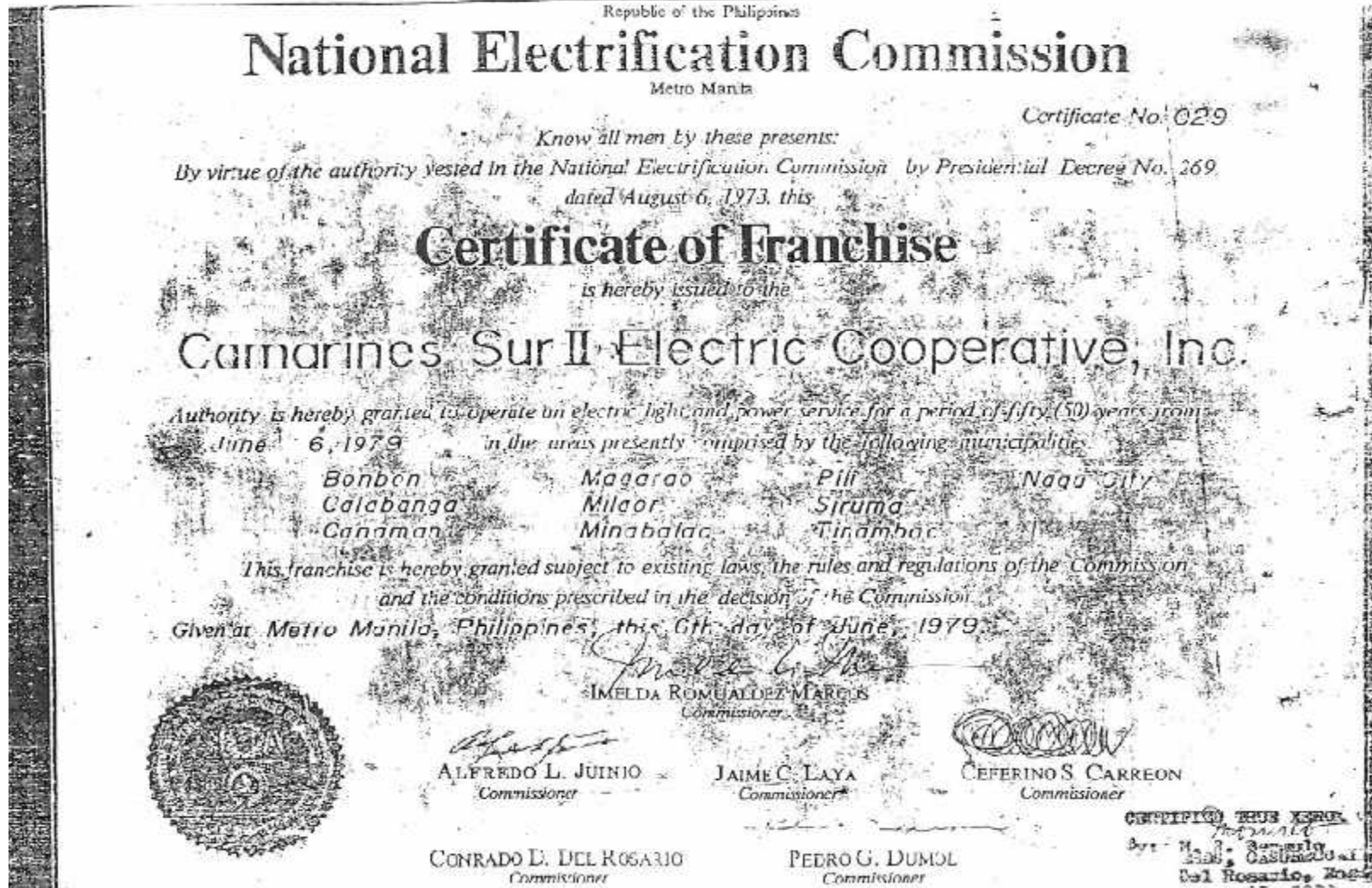


# CASURECO II ENERGY OUTLOOK

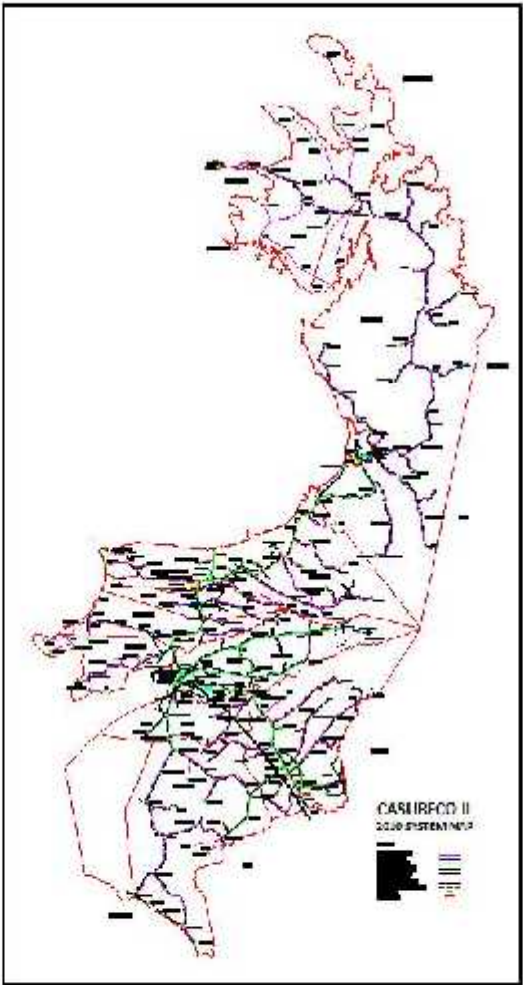
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CASURECO II WAS ORGANIZED AND IS EXISTING UNDER AND BY VIRTUE OF PRESIDENTIAL DECREE NO. 269 (“P.D. 269”), AS AMENDED, WITH PRINCIPAL OFFICE AT MAHARLIKA HIGHWAY, DEL ROSARIO, NAGA CITY

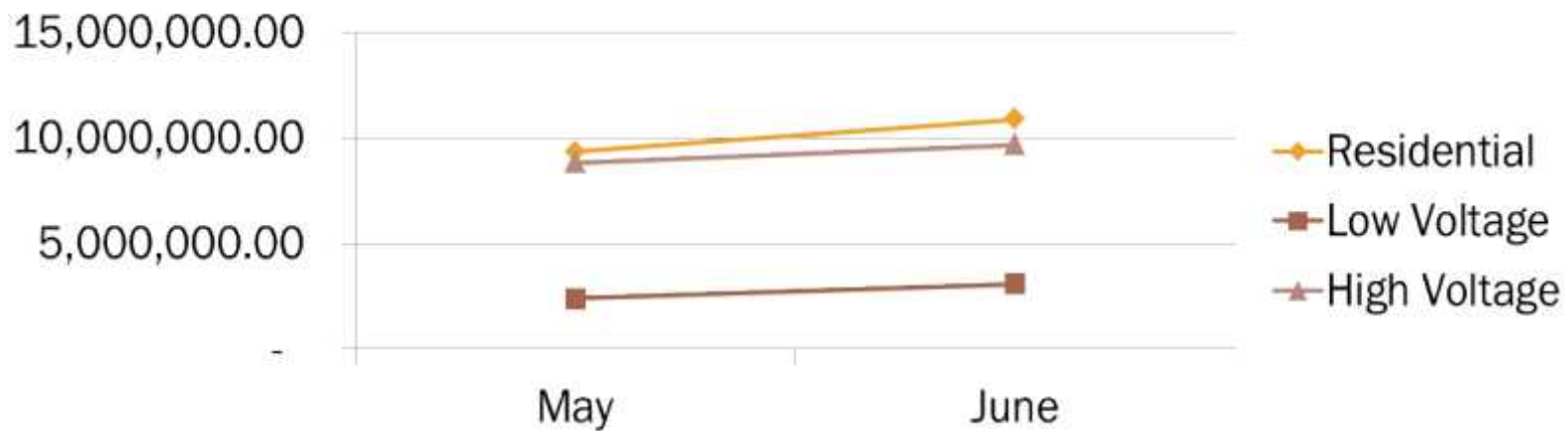


THE COOPERATIVE HOLDS A CERTIFICATE OF FRANCHISE IN THE AREAS COMPRISING OF ONE (1) CITY AND NINE (9) MUNICIPALITIES IN THE PROVINCE OF CAMARINES SUR



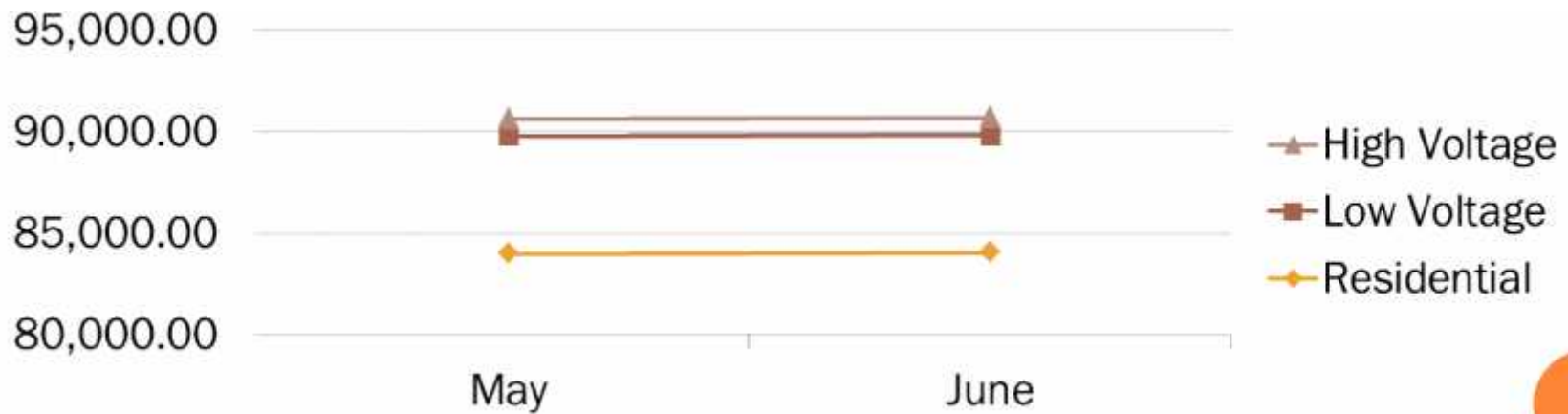
# ENERGY SALES (KWH)

	Residential	Low Voltage	High Voltage
May	9,342,089.08	2,410,231.05	8,836,286.05
June	10,884,099.35	3,101,834.12	9,683,463.61



# NO. OF CUSTOMERS

	Residential	Low Voltage	High Voltage
May	83,990.00	5,794.00	875.00
June	84,061.00	5,770.00	876.00





# LOAD PROFILE (kW)



# DISTRIBUTION DEVELOPMENT PLAN

- Casureco II prepared its Distribution Development Plan (DDP) using the baseline data from 2009-2013 to ascertain the projections for 2014 until 2023.
- The said DDP is being submitted to the Department of Energy which is being used in the assessment of over-all growth and with the National Grid Corporation, which determines if transmission substations need upgrading.



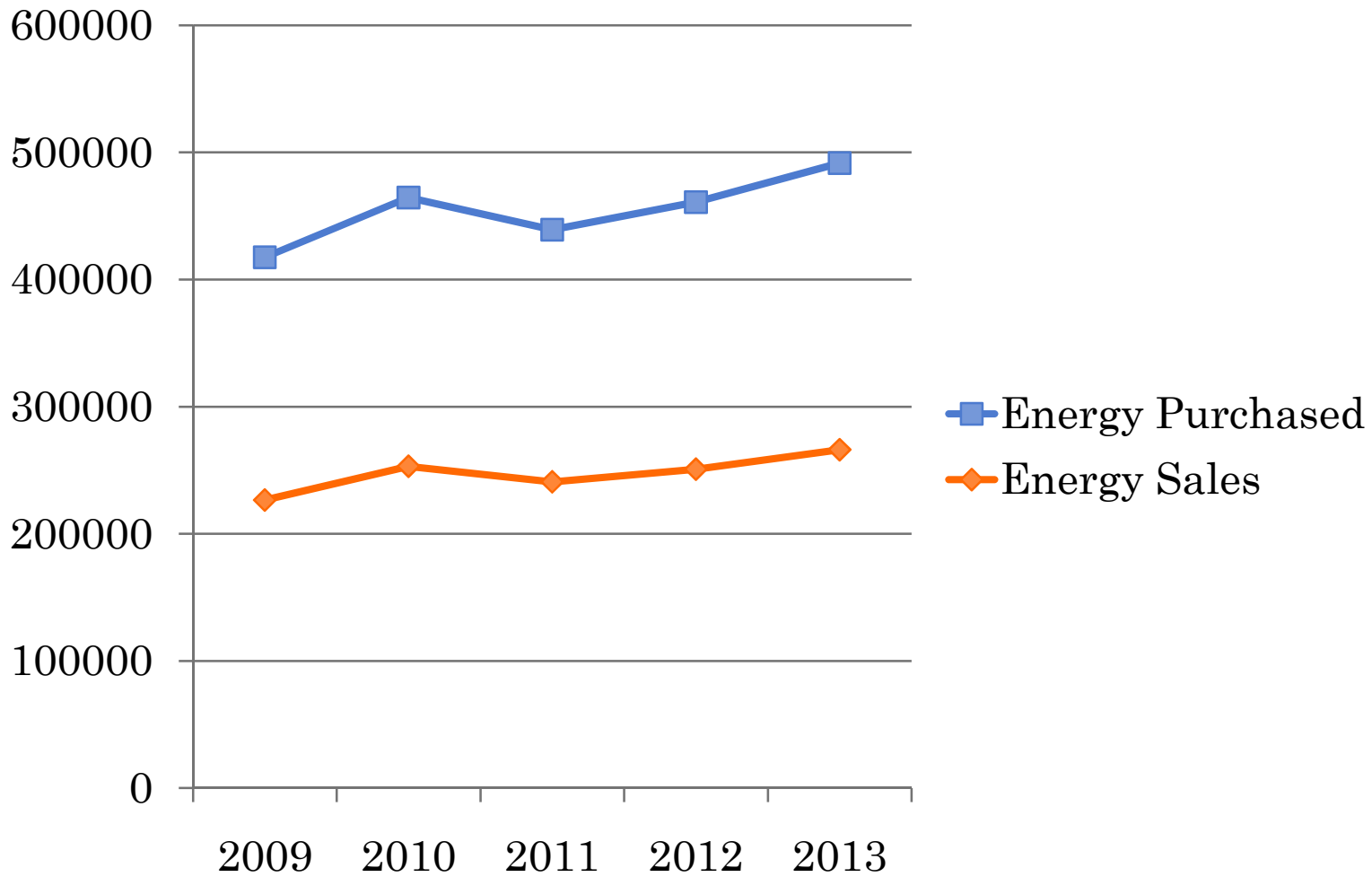
## HISTORICAL DATA 2009 - 2013

	2009	2010	2011	2012	2013
No. of Customers	76,880	81,373	81,877	84,586	88,280
Energy Purchased	226,361	253,052	240,760	250,761	266,127
Energy Sales	191,188	211,457	198,523	210,125	225,531
Load Factor	57.6%	64.4%	61.1%	60.5%	58.3%
Peak Demand	44,840	44,840	44,976	47,280	52,095
Substation Capacity	65	65	65	65	85





# HISTORICAL DATA 2009-2013 (KWH)

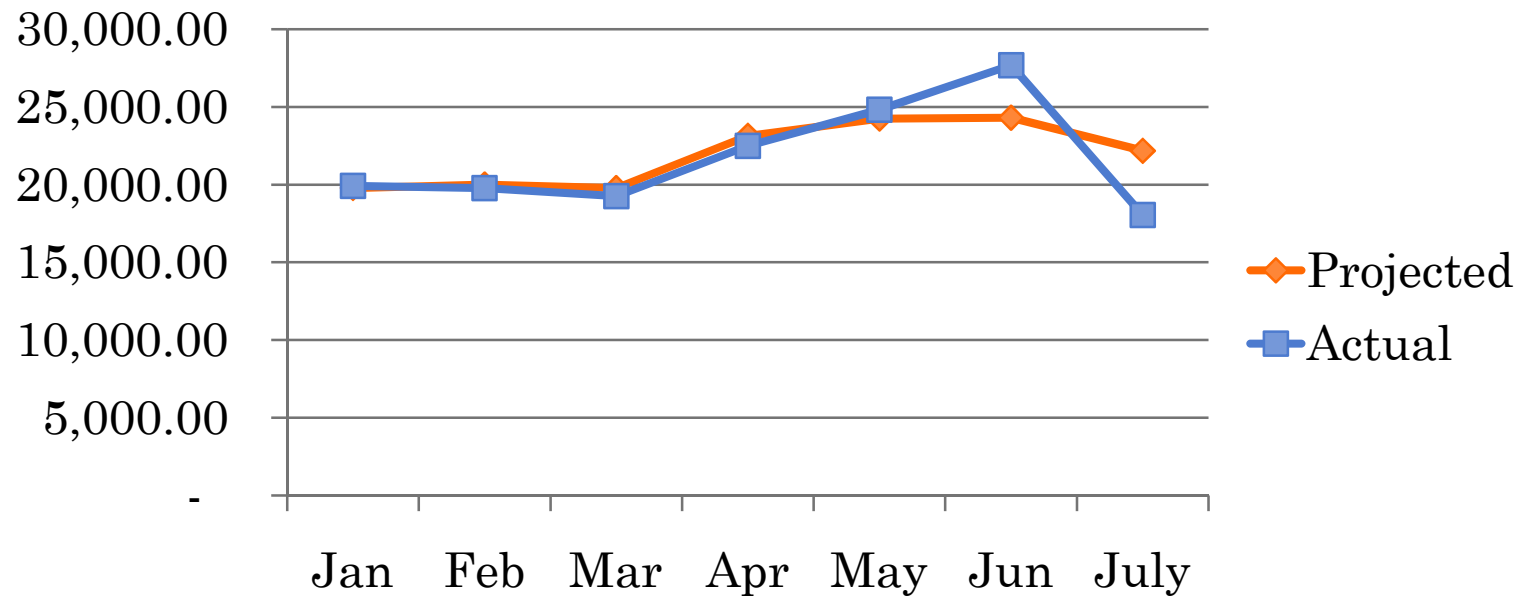


## ENERGY PROJECTIONS: 2014-2018

	2014	2015	2016	2017	2018
No. of Customers	91,807	94,053	96,283	98,489	100,668
Energy Purchased (kWh)	266,330	272,314	276,147	282,354	288,458
Energy Sales	232,395	238,866	245,459	252,096	258,701
Load Factor	58.0%	58.0%	58.0%	58.0%	58.0%
Peak Demand (kW)	52,419	53,597	54,351	55,573	56,774
Substation Capacity (MVA)	85	85	85	85	85

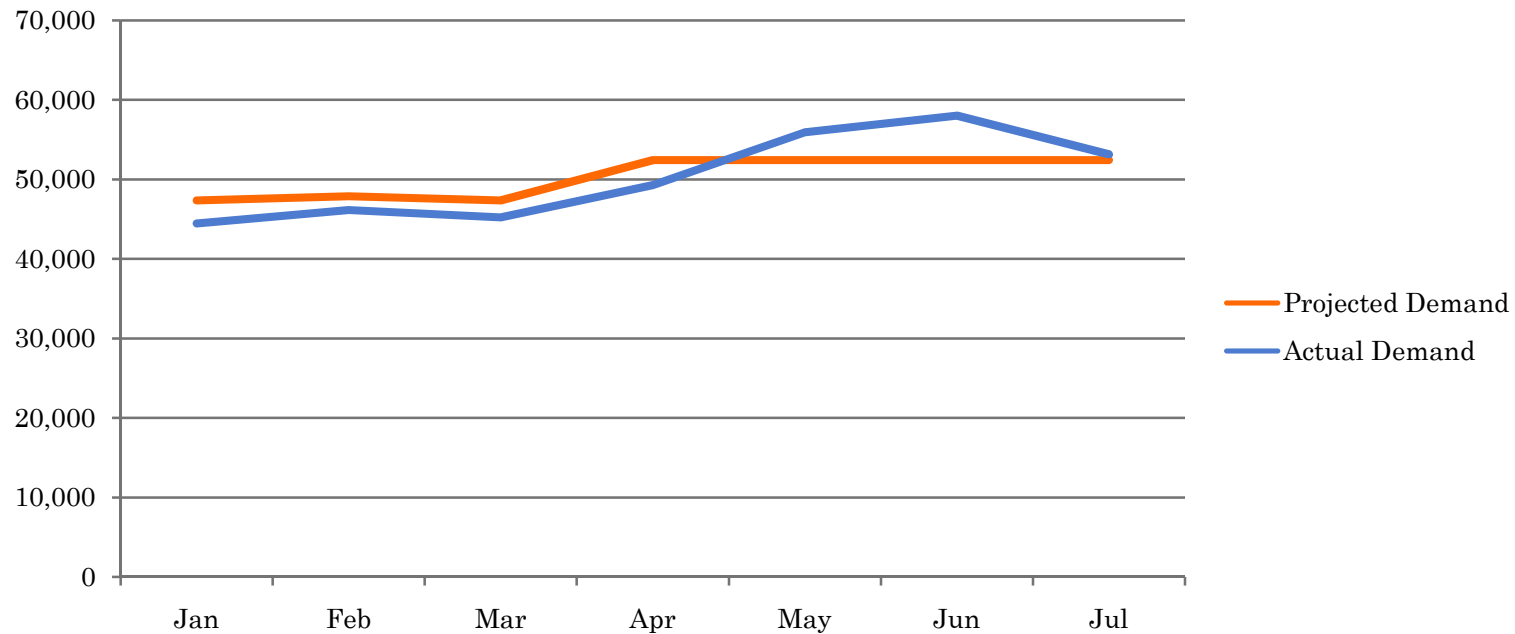
# PROJECTIONS VS. 2014 ACTUAL PURCHASES

	Jan	Feb	Mar	Apr	May	Jun	Jul
Projected Purchases	19,773.78	19,991.24	19,767.37	23,136.39	24,252.89	24,309.32	22,175.79
Actual Purchases	19,908.53	19,776.04	19,264.02	22,493.36	24,809.78	27,678.07	18,042.23



# PROJECTIONS VS. 2014 ACTUAL DEMAND

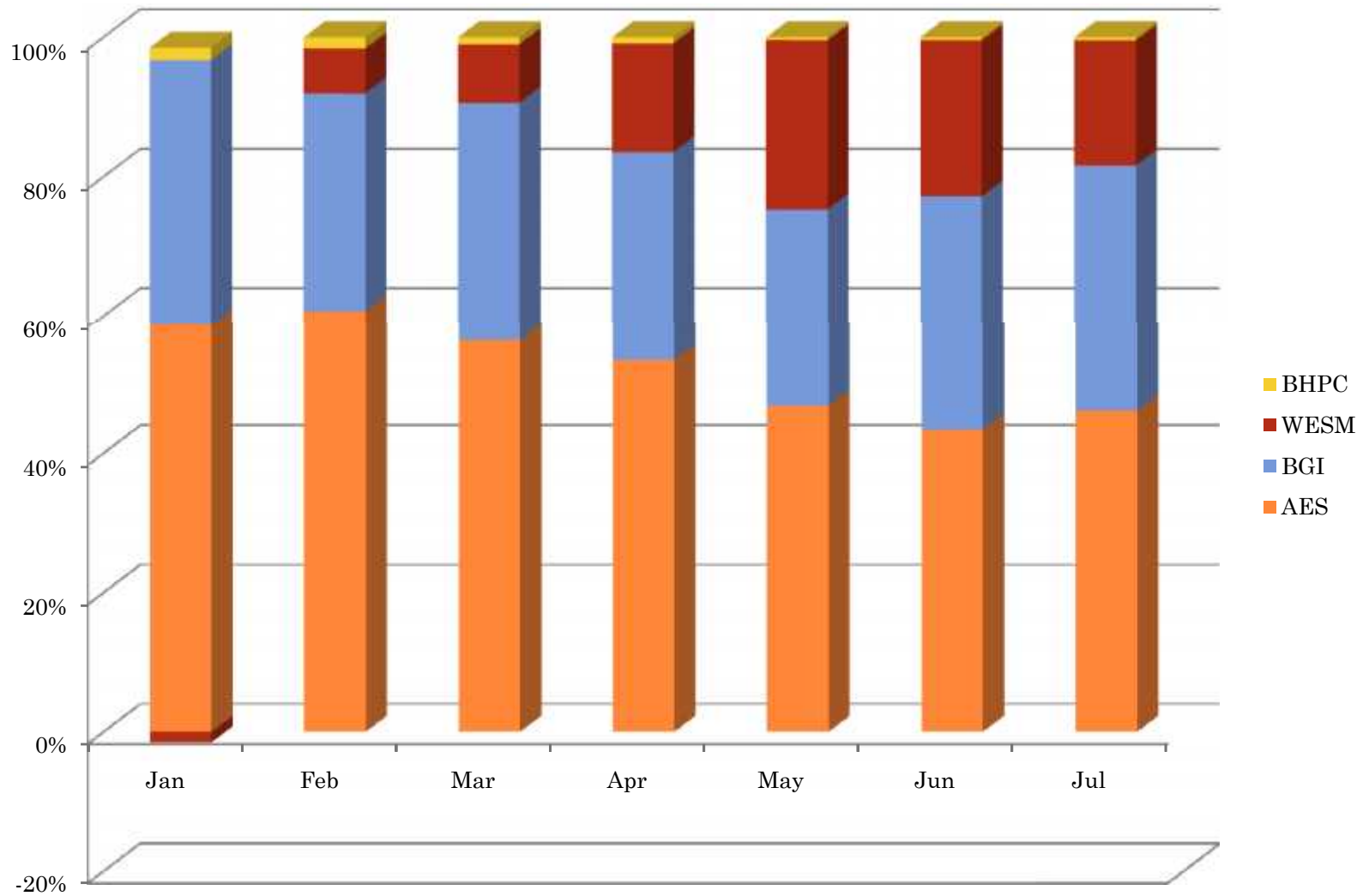
	Jan	Feb	Mar	Apr	May	Jun	Jul
Projected Demand	47,351	47,872	47,336	52,419	52,419	52,419	52,419
Actual Demand	44,448	46,134	45,209	49,268	55,917	58,020	53,143



# ENERGY PURCHASES DISTRIBUTION

	Power Purchases (kWh)				
Billing Month	AES	BGI	WESM	BHPC	TOTAL
January	12,015,600.00	7,846,200.00	(306,070.00)	352,800.00	19,908,530.00
February	12,015,600.00	6,178,300.00	1,269,940.00	312,200.00	19,776,040.00
March	10,852,800.00	6,613,500.00	1,615,720.00	182,000.00	19,264,020.00
April	12,015,600.00	6,786,100.00	3,504,060.00	187,600.00	22,493,360.00
May	11,628,000.00	7,068,000.00	6,017,180.00	96,600.00	24,809,780.00
June	12,015,600.00	9,359,600.00	6,193,670.00	109,200.00	27,678,070.00
July	8,320,000.00	6,410,000.00	3,236,630.00	75,600.00	18,042,230.00

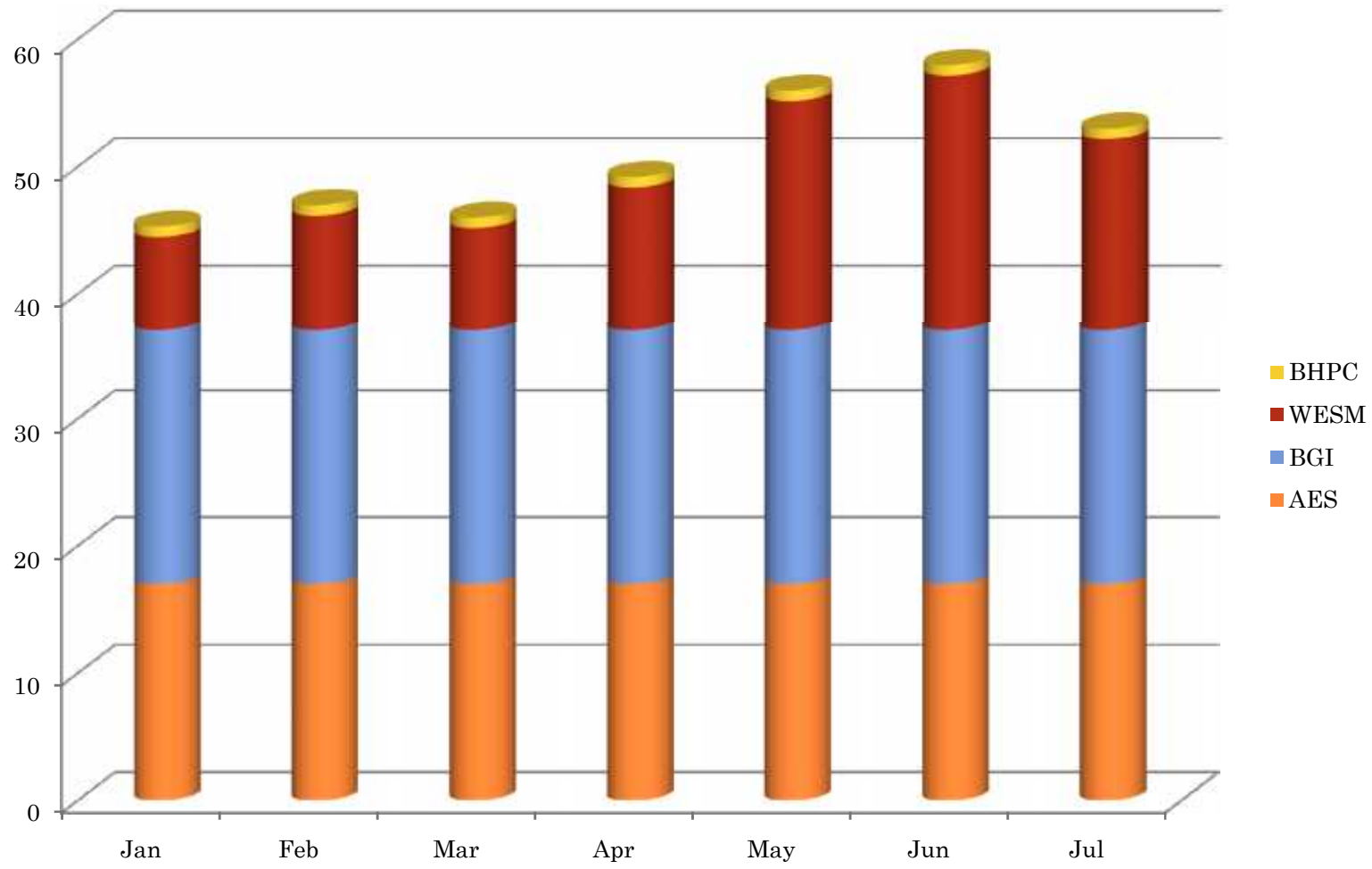
# ENERGY PURCHASES DISTRIBUTION



# DEMAND DISTRIBUTION

	Power Purchases (MW)								
Billing Month	AES	AES %	BGI	BGI%	WESM	WESM %	BHPC	BHPC%	TOTAL
Jan	17	37.51	20	44.13	7.5	16.57	0.81	1.78	<b>45</b>
Feb	17	36.17	20	42.55	9.2	19.56	0.81	1.72	<b>47</b>
Mar	17	36.89	20	43.41	8.2	17.95	0.81	1.75	<b>46</b>
Apr	17	34.51	20	40.59	11.4	23.26	0.81	1.64	<b>49</b>
May	17	30.36	20	35.71	18.19	32.48	0.81	1.44	<b>56</b>
Jun	17	29.31	20	34.48	20.19	34.81	0.81	1.39	<b>58</b>
Jul	17	32.08	20	37.73	15.19	28.66	0.81	1.52	<b>53</b>

# CURRENT POWER SITUATION - DEMAND







# POWER SUPPLY CONTRACT STATUS

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## BACKGROUNDER ON THE DEMAND INCREASE

- While the Distribution Development Plan only projected a 52.09 MW peak demand for 2014, as early as July, the cooperative has already registered a 58.02 MW peak demand which is even higher than the peak demand from 2018 (56.77 MW).
- This can be attributed to the boom of commercial and industrial establishments that recently connected to the distribution system of CASURECO II.



# TOP 20 NEW CUSTOMERS OF CASURECO II (2013 AND ONWARDS)

Establishment	Address	Average Consumption (kWh)	Average Demand (MW)
POLYTRADE SALES & SERVICES	SAN JOSE	146,370.00	174.388
ROMAR & SONS ESTATE DEVELOPMENT (IBM)	CBD II TRIANGULO	99,820.00	226.625
SANFORD MARKETING CORP. (SAVEMORE PILI)	OLD SAN ROQUE	92,400.00	248.080
TOYOTA NAGA CITY, INC.	CADLAN, PILI	22,456.00	108.570
FREMONT FOODS CORP. (JOLIBEE)	SAN JUAN, PILI	20,300.00	0.000
6 IN ONE CORP.	TINANGIS, PILI	17,250.00	53.988
SOUTH STAR DRUG	MCKAY BLDG PANGANIBAN DRIVE CO	12,800.00	4.260
MORALES EMOLYN (POULTRY FARM)	CURRY, PILI	7,532.00	38.710
AMAN EMETERIO	HACIENDAS DE NAGA CAROLINA	7,252.00	104.160
HONDA CARS CAM. SUR	SAN JOSE	146,370.00	174.388




# TOP 20 NEW CUSTOMERS OF CASURECO II (2013 AND ONWARDS)

Establishment	Address	Average Consumption (kWh)	Average Demand (MW)
ROYAL CROWN EQUIPMENT & CONST	YABU FARM PALESTINA	6552.00	154.210
ABELLA ESTRELLA	Z1 BALATAS BESIDE YELLOWCAB	6150.00	0.000
REMDTEK	SAN JOSE PILI	5670.00	21.788
BICOL CARDIOVASCULAR DIAGNOSTIC	CBD II TRIANGULO CONCEPCION	5528.00	25.970
BICOL MEDICAL CENTER	PEQUENA	5250.00	29.225
COMMUNITIES NAGA INC	CAMELLA NAGA DEL ROSARIO	4834.80	0.000
COMMUNITIES NAGA INC	CAMELLA HEIGHTS SUBD CARARAYAN	3722.60	0.000
AGRICULTURAL TRAINING INSTITU	DIVERSION ROAD, SAN AGUSTIN, PILI	3506.00	0.000
POULTRY HOUSE	Z1 HACIENDA SALAMAT, CADLAN, PILI	3408.60	0.000
MINESKI INFINITY NAG A	JP II ATRIUM BLDG BAGUMBAYAN S	3376.00	20.880



# POTENTIAL BIG LOAD CUSTOMERS -2016

Potential Customer	Projected Demand (in MW) BY 2016
BMC Expansion	0.950
Bicol Access Health Expansion	0.5
SM City Naga Expansion	1.9
Gaisano Mall	1.9
IBM	0.95
Central Business District	2.85
Baker's Plaza Pili (Plant)	1.00
<b>TOTAL</b>	<b>9.05</b>



## DEMAND INCREASE AND WESM PURCHASES

- Due to the unpredictability of WESM rates coupled with the large volume of purchase from the same (37%), CASURECO II deemed it imperative to enter into a bilateral contract to reduce its exposure in the spot market.
- Finally, this will also eliminate the constant demand of WESM for additional Prudential requirement which is the main cause of CASURECO 2's suspension from the WESM.



# WESM PRICES (AUG 12 – 19, 2014)

	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday
Hour	12-Aug-14	13-Aug-14	14-Aug-14	15-Aug-14	16-Aug-14	17-Aug-14	18-Aug-14	19-Aug-14
1	2.83206	4.0556	3.3624	3.81601	4.08938	8.11894	3.37907	4.09133
2	2.8175	4.0312	3.2616	3.32701	3.36335	8.09667	3.12982	4.07175
3	2.81624	4.0034	3.23851	3.28388	3.34396	8.05585	2.36868	3.48156
4	2.81871	3.2167	3.01162	3.30581	3.36441	4.06738	3.12436	4.07598
5	3.05521	3.2119	3.26575	3.32558	4.04359	3.36901	3.1339	4.09346
6	3.00228	3.0009	3.26131	3.30313	3.34089	3.12606	3.1269	4.08982
7	2.79827	2.8058	2.99776	3.00664	1.98748	1.74397	3.12319	3.38581
8	4.08715	4.0637	4.05754	4.05223	3.13118	1.83864	3.40297	4.08546
9	23.73368	6.5509	9.95514	6.98089	4.0983	2.08595	7.11502	6.76426
10	12.56442	4.1536	11.53811	12.30527	7.45253	4.03845	12.96429	11.8075
11	805.4351	11.5207	13.90754	11.88192	10.09196	8.06254	14.00078	18.5205
12	12.81042	11.4764	9.98359	9.94851	9.98987	8.07531	11.81762	12.12521
13	11.48671	11.509	11.52022	11.51164	10.08453	8.07246	11.81814	16.14312
14	805.3394	32.1519	28.17886	819.3355	11.7712	8.05505	26.73304	843.7946
15	25.01602	11.4911	17.40033	13.31553	11.77759	8.09948	11.82263	16.11098
16	795.7538	11.4704	9.21577	6.93183	9.90994	8.07365	11.81062	7.07142
17	9.85681	9.2508	3.32567	2.69903	4.10017	8.05725	11.78767	13.10236
18	4.13851	3.3126	3.33256	2.3446	4.11868	6.81425	4.11097	6.9631
19	12.81536	11.6643	8.31796	6.64035	4.12611	8.16606	6.90144	11.81384
20	11.56046	7.4247	8.17956	6.33234	6.73413	9.89796	6.78517	11.81241
21	15.44426	12.3844	9.33756	7.00652	7.28497	8.16966	10.10783	11.81862
22	23.61616	15.0998	9.75644	12.60813	8.09405	8.15194	13.09249	15.93339
23	15.71048	9.6622	9.58777	6.75068	8.12084	8.13081	4.12882	13.05771
24	6.8024	4.0915	4.08824	6.628	7.06898	6.7716	4.10798	9.87257
AVE	<b>109.0130</b>	<b>8.4001</b>	<b>8.0867</b>	<b>40.4434</b>	<b>6.3120</b>	<b>6.5475</b>	<b>8.0789</b>	<b>44.0869</b>



## SOLICITATION OF OFFERS

- Last April 2014, CASURECO II began soliciting offers for power supply to mitigate the volume of purchases from the WESM.
- The following were the companies which were notified by CASURECO 2, through letters, personal meetings and other medium of its intent to enter into a power supply for 20% of the remaining demand requirement or approximately 10 MW during peak hours:





# CURRENT POWER SITUATION

Company	Update	Remarks
Trans-Asia Oil and Energy Development Corporation (TAO-EDC)	Manifested by e-mail that they cannot submit an offer at this time.	
AES Philippines	AES has no available extra capacity as of the moment. They are willing to discuss a forward contract.	
FDC Utilities	Submitted its Term Sheet via e-mail	Presented their offer May 29th
San Miguel Energy Corporation (SMEC)	Submitted its offer	Presented their offer May 29th
GN Power	They cannot commit at present since they are fully contracted.	
Aboitiz Power	No offer submitted.	

## CURRENT POWER SITUATION

- The following are the power companies which have important and existing contracts with the cooperative:

Company	Update	Remarks
AES – Philippines	Has a live contract for a slice of the power requirements of Casureco II until May 25, 2026.	Contract is provisionally approved by ERC.
Bacman Geothermal Inc.	Contract for supply runs through January 25, 2018	Contract is provisionally approved by ERC
Bicol Hydro Power Corporation	Contract for supply runs through October 25, 2018	Contract is provisionally approved/embedded



# RESULTS OF POWER SUPPLY CONTRACTING

- Among the two power suppliers who offered for a slice of the cooperative's load requirements, the Board and Management awarded the Power Supply Contract to San Miguel Energy Corporation (SMEC) last August 18, 2014 subject to the revisions to the Contract raised by CASURECO II.
- The cooperative and SMEC will commence the Power Supply Contract on September 26, 2015 up until the commencement of the Limay Plant (possibly December 26, 2015) and another ten (10) years henceforth.



# RATE COMPARISON – TOTAL ENERGY CHARGE AND BASIC ENERGY RATES

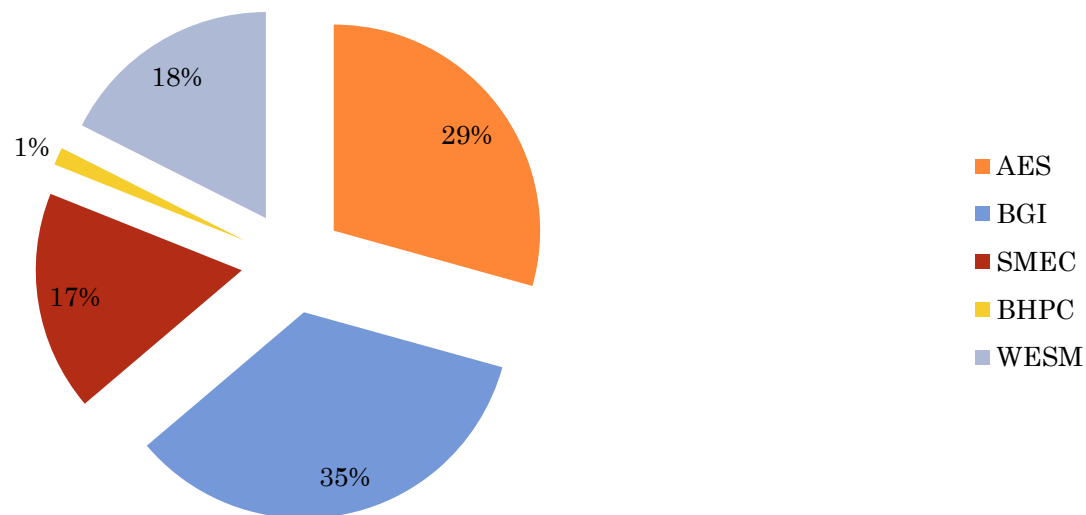
Particular	FDC	SMEC	Variance
Energy Charges	38,907,153.00	28,852,823.00	10,054,330.00
VAT Charges	0.00	3,462,338.76	(3,462,338.76)
<b>Total Energy Charges</b>	<b>38,907,153.00</b>	<b>32,315,161.76</b>	<b>6,591,991.24</b>
<b>Rates</b>			
Basic Energy Rate	5.4038	4.0073	1.3965
VAT Rate	0.00	0.4809	-0.4809
<b>Total BER</b>	<b>5.4038</b>	<b>4.4882</b>	<b>0.9156</b>



# RESULTS OF POWER SUPPLY CONTRACTING

- With the entry of SMEC to the supply portfolio of CASURECO II, this is now the projected distribution of demand (in MW):

AES	BGI	SMEC	BHPC	WESM	TOTAL
17	20	10	0.81	10.19	58



## OTHER POWER SUPPLY OPTIONS

- Battery Storage (AES Proposal)
- Net Metering thru Renewable Energy Supply such as Solar Panel (Green Bio, etc.)
- Embedded Generation (Coal-Fire, Biomass)
- Interruptible Load Program (Demand Side Load Dropping)





# SUBSTATION CAPACITY STATUS

NCPC Stakeholder's Forum

August 23, 2014

# CURRENT SUB-STATION LOADING

<b>NAGA 40 MVA</b>	<b>FEEDER</b>	<b>MVA(PEAK)</b>	<b>% LOAD PER FEEDER</b>	<b>% LOAD PER SUBSTATION</b>
<b>OLD 20 MVA</b>	11	2.9	36.37	<b>81.6</b>
	12	6.8	83.63	
	15	7.1	86.03	
	14 (SPARE)	0	0	
<b>NEW 20 MVA</b>	13	5.6	68.06	<b>68.56</b>
	16 (NO LOAD)	0	0	
	17 (SPARE)	0	0	
	18	7.3	90.2	
<b>20 MVA DEL ROSARIO</b>	51	5.2	63.9	<b>62.11</b>
	52	4.3	53.27	
	53	3.1	38.29	
	54	0.7	8.67	





# PROJECTED SUBSTATION LOADING WITH BMC/GAISANO/SM/IBM/CBD

<b>NAGA 40 MVA</b>	<b>FEEDER</b>	<b>MVA(PEAK)</b>	<b>% LOAD PER FEEDER</b>	<b>% LOAD PER SUBSTATION</b>
<b>OLD 20 MVA</b>	11	2.9	36.37	81.6
	12	6.8	83.63	
	15	7.1	86.03	
	14(SPARE)	0	0	
<b>NEW 20 MVA</b>	13	5.6	68.06	84.5
	BMC/ GAISANO	4	51.4	
	16(NO LOAD)	0	0	
	17(SPARE)	7.3	90.2	
<b>20 MVA DEL ROSARIO</b>	18	5.2	63.9	83
	51	4.3	53.27	
	52	3.1	38.29	
	54 + CBD,SM	4	51.45	



## SUB-STATION CAPACITY ANALYSIS

- With the inflow of big load connections to the distribution system of CASURECO II, the two (2) Naga and one (1) Del Rosario 20 MVA substations have reached its maximum loading capacity, hovering at around 80% loading.
- The ideal loading for substation transformers is only 70%, thus there is a need to commission an additional substation to accommodate forthcoming big loads.





# DISTRIBUTION LINE PLANS AND COST ESTIMATES

NCPC Stakeholder's Meeting

August 23, 2014

## SUB-STATION AND DX LINE UPGRADES

- The cooperative is proposing to put up a new 20 MVA Substation in the San Felipe Area to accommodate future loads and de-load the existing substations in Concepcion Grande and Del Rosario substations.
- The following were the parameters used in the choosing of the location:
  - Proximity to 69 kV line,
  - Land value
  - Proximity to other feeders and areas (Canaman and Magarao).



# PROPOSED SUBSTATION LOADING WITH NEW 20 MVA SAN FELIPE SUBSTATION

NAGA 40MVA S/S	MVA(PEAK)	% LOAD PER FEEDER	% LOAD PER SUBSTATION
OLD 20MVA	2.9	37.29	69.00
	5.8	74.61	
	5.1	65.6	
	0	0	
NEW 20MVA	5.1	65.6	65.50
	4	51.45	
	0	0	
	4	51.45	
20MVA DEL ROSARIO	5.2	66.89	62.11
	4.3	55.31	
	3.1	39.87	
	0.7	51.45	
PROPOSED 20MVA SAN FELIPE	3.5	45.02	52.00
	3.6	46.31	
	2.1	27.01	
	2	15.43	

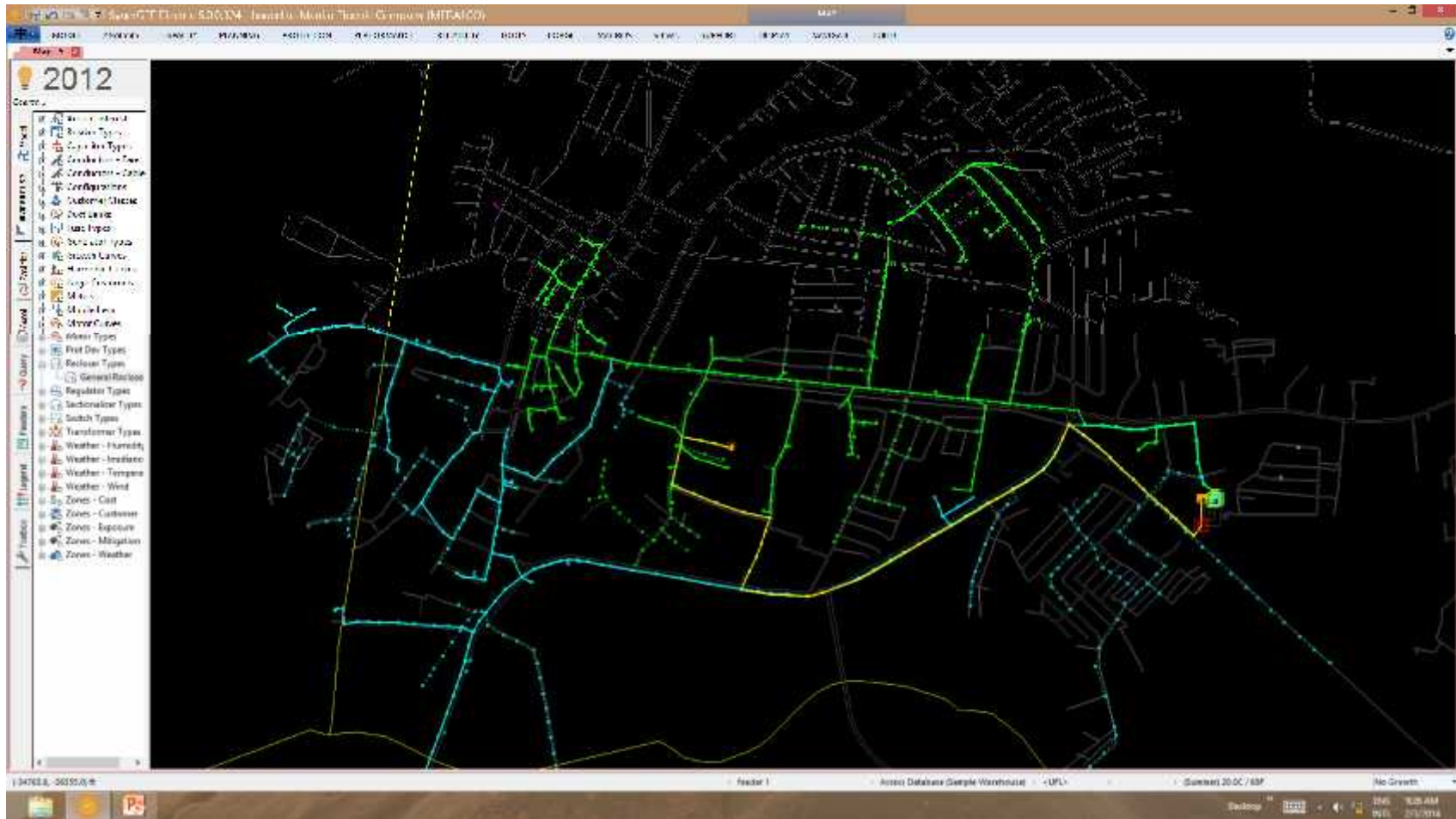


# COMPARISON OF LOADING WITH NEW BIG LOADS VS. LOADING WITH SAN FELIPE S/S

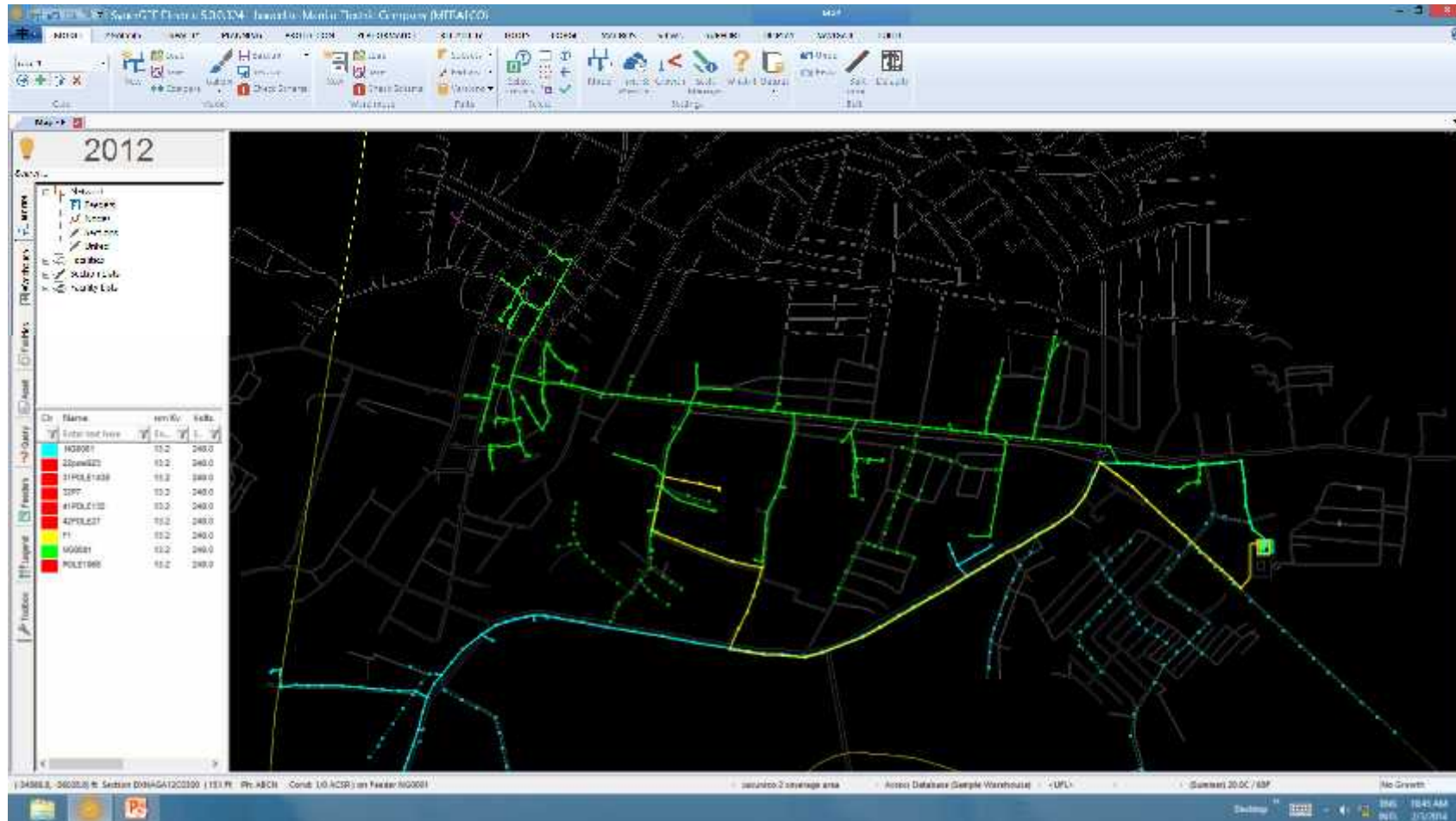
	% Loading w/o SAN FELIPE SS	% Loading w/ SAN FELIPE SS	% Deloaded Variance
Naga Old 20 MVA	81.60	69.00	12.60
Naga New 20 MVA	84.50	65.50	19.00
Del Rosario 20 MVA	83.00	62.11	20.89
Proposed San Felipe 20 MVA		52.00	



# EXISTING NAGA OLD 20MVA

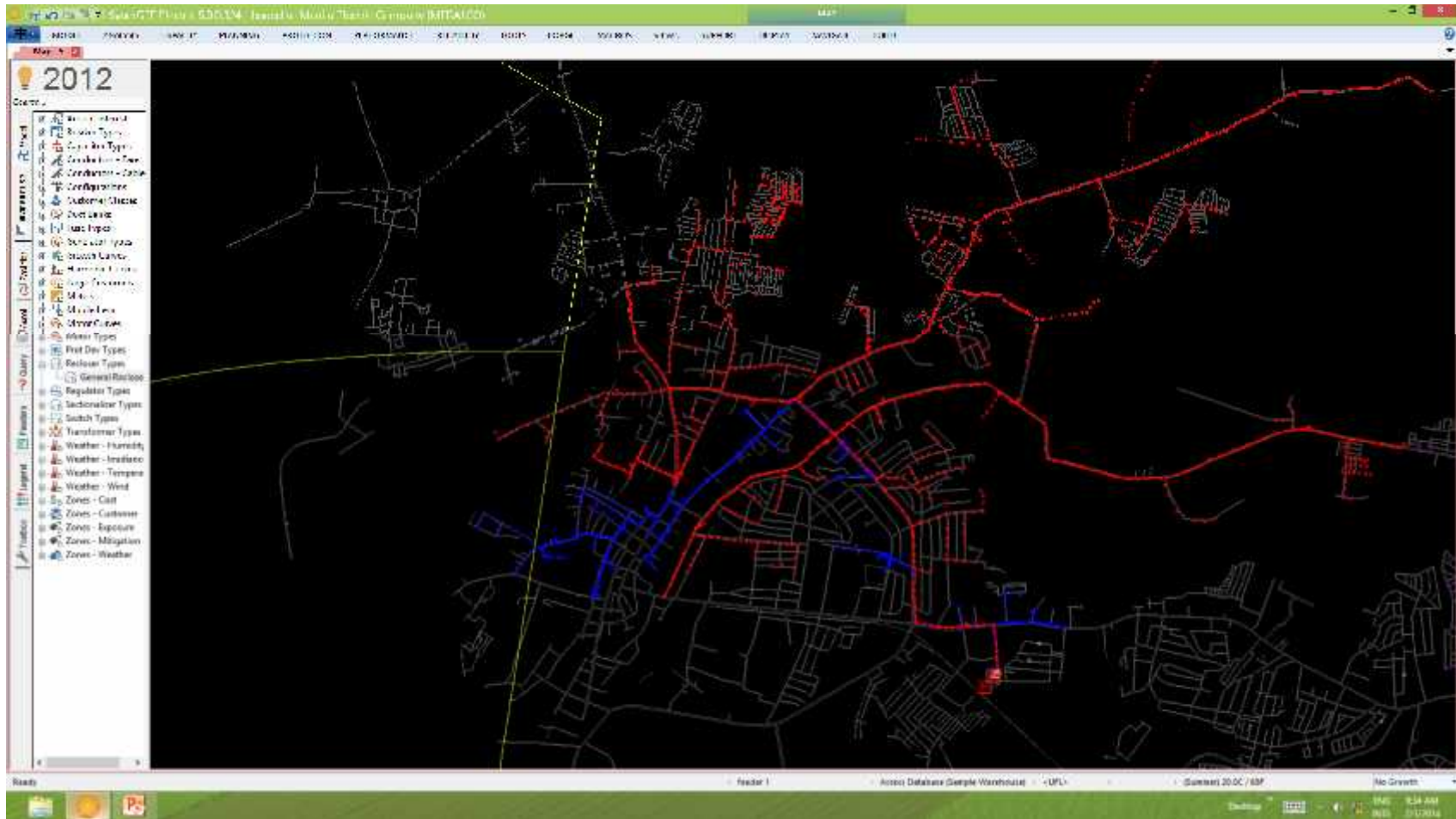


# PROPOSED OLD 20MVA REFEEDERING

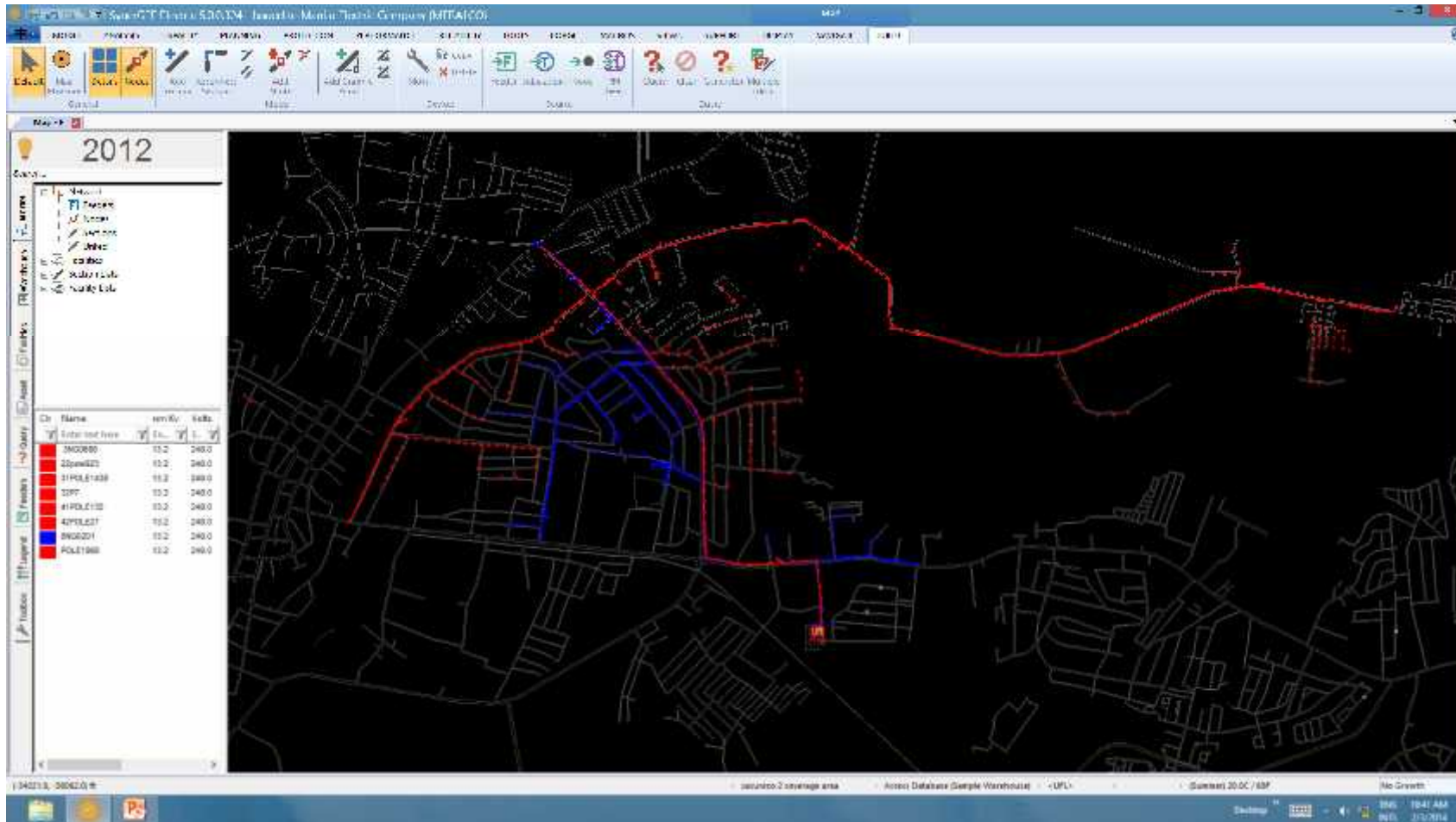




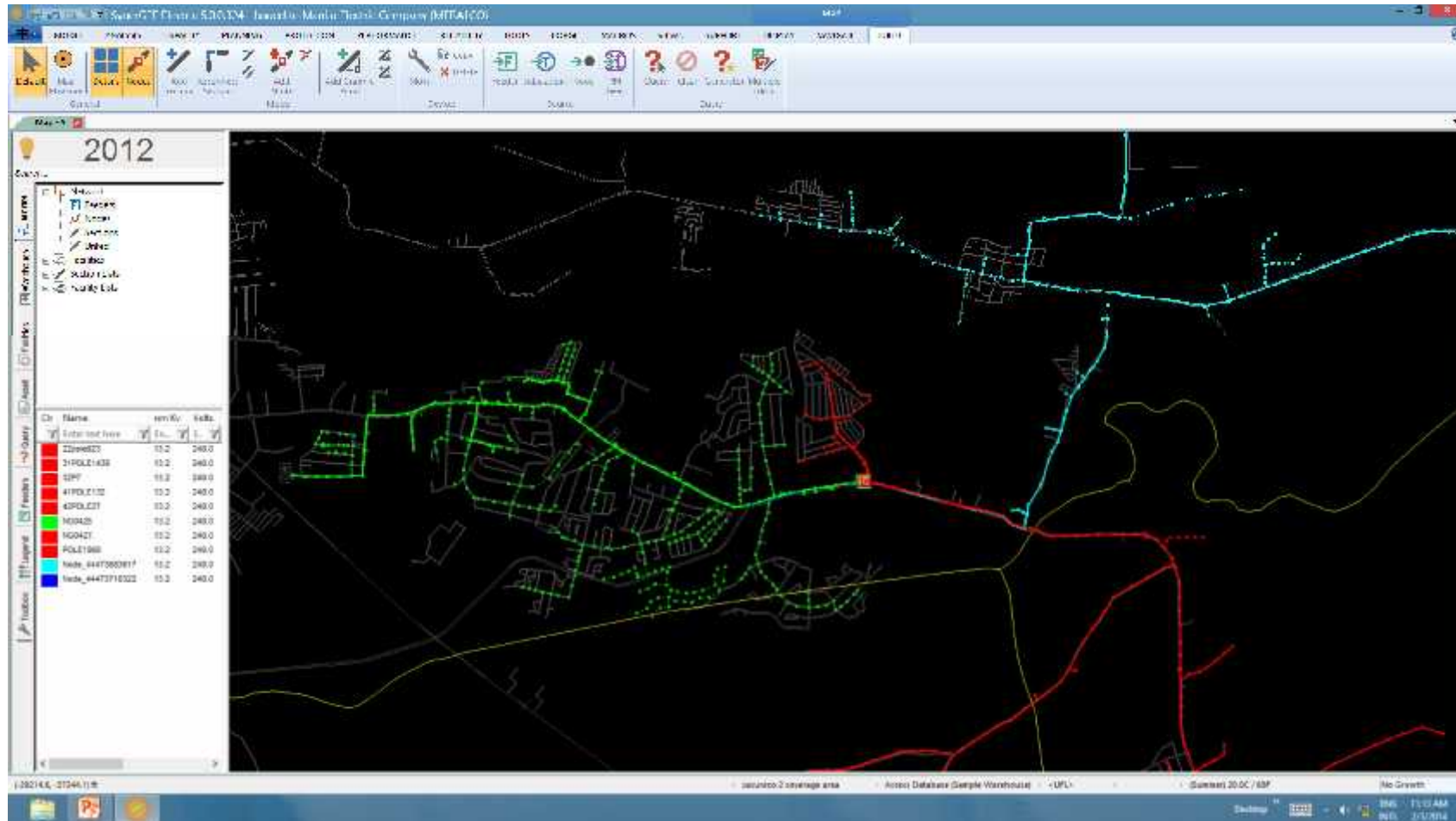
# EXISTING NAGA NEW 20MVA



# PROPOSED NEW 20MVA REFEEDERING



# EXISTING 20MVA DEL ROSARIO

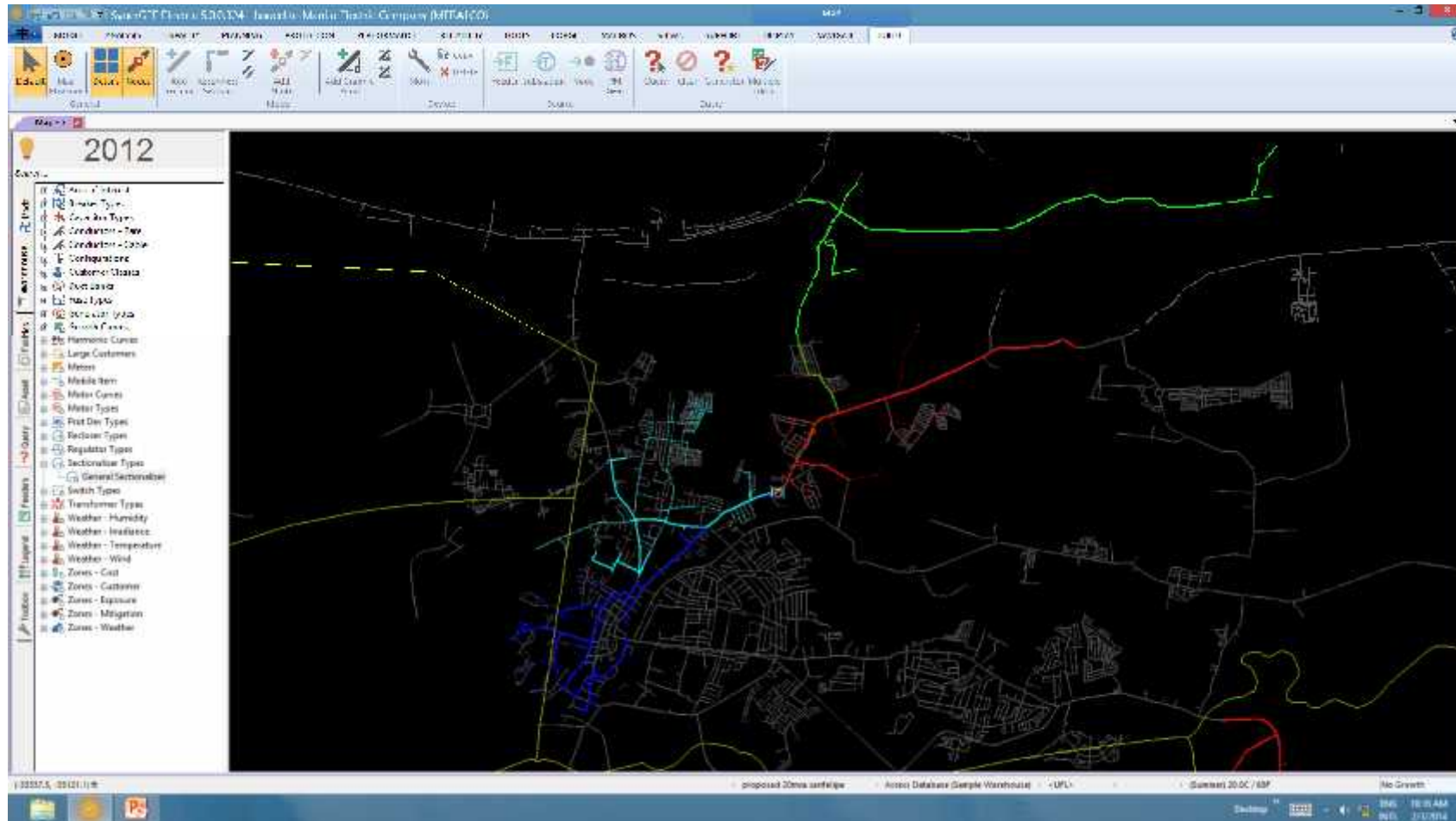


# PROPOSED 20MVA DEL ROSARIO





# PROPOSED 20MVA AT SAN FELIPE



# ESTIMATED PROJECT COSTS

Particulars	Length (kms)	Unit Cost (Php/km)	Cost (Php)
20 MVA Substation		679,745.00	50,000,000.00
Land and Building			10,000,000.00
Three Phase	2.700		1,835,311.50
Double Circuit Line new Feeders	0.850	1,224,548.00	1,040,865.80
Double Circuit Line new Feeders	1.100	1,224,548.00	1,347,002.80
69 kV Line from SS to NGCP Tapping Point	5	4,000,000.00	20,000,000.00
<b>TOTAL ESTIMATED COST</b>			<b>84,223,180.10</b>



END OF PRESENTATION.  
DIOS MABALOS PO!





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**EXECUTIVE ORDER NO. 2014-008**

**CREATING THE CITY OF NAGA  
POWER COMMISSION (CNPC) AND FOR OTHER PURPOSES:-**

**WHEREAS**, pursuant to its mandate under the General Welfare Clause of the Local Government Code, the City Government of Naga sees the need to address the challenges of change and uncertainty in the power industry and to improve energy systems that promote a strong economy and a healthy environment within Metro Naga by assessing, advocating, and encouraging public-private partnerships or participation;

**WHEREAS**, there is a need for the City to carry out overall energy sector planning and policy implementation; promote the diversification of energy resources through the development and optimal utilization of all, including the introduction and development of new and alternative energy resources like Hydro, Solar, Wind, and Biomass Energy; and invite players that can provide the technology that will generate power in order to ensure affordable power costs;

**WHEREAS**, the City is a stakeholder of the local electric cooperative and is duty bound to ensure its operational efficiency and financial viability, that power supply is reliable and sustainable, and that power rates are competitive and affordable to consumers, pioneering investors and business expansions in line with the City's economic development initiatives;

**WHEREAS**, a comprehensive Energy Plan for the City of Naga based on the development of alternative and renewable sources of energy is a prerequisite to positioning the City of Naga as the premier advocate in taking advantage of these clean, non-depletable energy sources as well as a means to attaining a competitive and affordable cost of energy in the years to come;

**WHEREAS**, the City Government also seeks to develop or encourage the development by the private and/or the government sector(s) of alternative and renewable sources of energy to attain competitive power cost within its territory and attract more investors in line with Republic Act 9513 (The Renewal Energy Act of 2008) and in consonance with the recommendations of the city's Renewable Energy Ways (RENEW) Task Force, created thru Executive Order No. 2014-007;

**WHEREAS**, it is crucial that a comprehensive and coordinated effort be initiated to ensure Metro Naga's future energy security;

**NOW, THEREFORE, I, JOHN G. BONGAT**, City Mayor of Naga, by virtue of the power and authority vested in me by law, do hereby order the following:

**Section 1. Creation and Purpose-** The City of Naga Power Commission (hereinafter CNPC), which is primarily tasked to provide the City Government a balanced plan to provide the energy needed for the city's future economic growth and prosperity, is hereby created. The plan shall identify Naga's energy supply and demand projections and, at the same time, recommend strategies on how to tap alternative and renewable sources of energy that can help close or minimize the gaps, in coordination with the RENEW Task Force.

**Section 2: Composition-** The Commission shall have a governing Board of Commissioners to be composed of the following:

- Chairman, SP Committee on Consumers Protection
- Department Head, City Planning and Development Office;
- Executive Director, Jesse M. Robredo Center for Good Governance;





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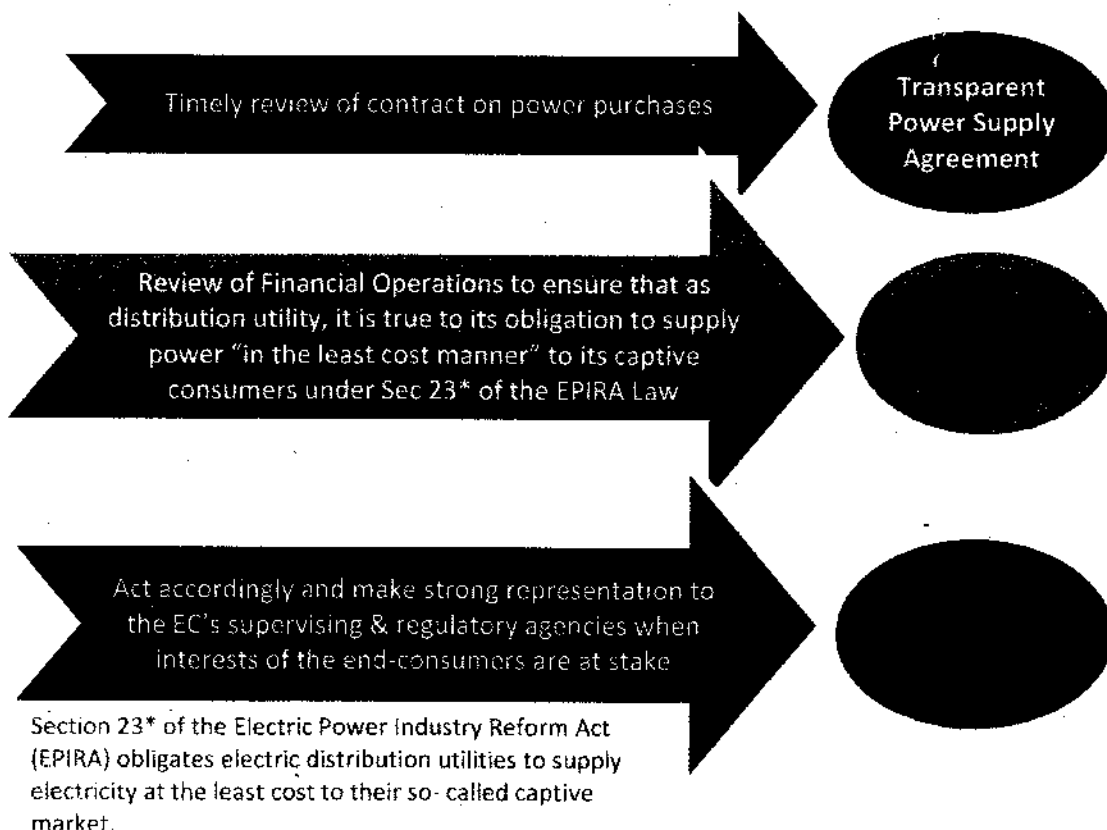


- Executive Director, Metro Naga Development Council;
- Manager, Camarines Sur II Electric Cooperative (CASURECO II)
- Chairperson, Naga City People's Council;
- President, Metro Naga Chamber of Commerce and Industry;
- Representative, Institute of Integrated Electrical Engineers of the Philippines;
- Representative, Consumers Group;
- Representative, Academe

The members shall elect from among themselves a Chairman and Vice-Chairman.

**Section 3. Functions-** The Board of Commissioners shall have the following functions:

- Review, inspect, monitor, and coordinate the performance of energy sector players within the City of Naga to ensure compliance and consistency with all laws governing energy. It shall serve as the center for solving any inter-related technical problems that may arise in the implementation of any policy relating to the field of energy in the City;
- Protect the people by bolstering their awareness with regard to laws governing energy. One of these is Section 23 of the EPIRA Law which obligates electric distribution utilities to supply electricity at the least cost to their captive market, as illustrated below:



For this purpose, the Board shall be given access to the financial records and transactions of CASURECO II, including its annual budget, quarterly summary of



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disbursements, semi-annual trial balance, or such other records as the Board may deem appropriate.

- c. Advise all tiers of the energy sector on the funding of energy research, development, production and distribution. It shall also serve as the center for gathering, analyzing, and disseminating information relating to the field of energy from all sources.
- d. Sit as a non-voting member of the Board of Directors of CASURECO II.


**Section 4. Technical Working Group.** In pursuit of the above purposes and functions, a Technical Working Group (TWG) is hereby constituted, to be comprised of the following:

- a. Electrical Engineering Section Chief, City Engineer's Office;
- b. Chief, Building Maintenance Office
- c. Representative from Camarines Sur Electric Cooperative (CASURECO) II
- d. Private Sector Representative with technical knowledge on energy research, development, production and distribution, to be appointed by the Mayor and confirmed by the Board.

The TWG shall assist the Board in conducting technical studies and recommending strategies/courses of action to realize the formulation of the energy plan.

**Section 5. Effectivity.** This order shall take effect immediately.

Issued this 28<sup>th</sup> day of February 2014 at the City of Naga, Philippines.

  
JOHN G. BONGAT  
City Mayor

Attested by:

  
FLORENCIO T. MONGOSO, JR., CSEE  
Department Head II and City Administrator



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**EXECUTIVE ORDER NO. 2014-008-A**

**AMENDING SECTION 4 OF EXECUTIVE ORDER NO. 2014-008, CREATING THE CITY OF NAGA POWER COMMISSION (CNPC) AND FOR OTHER PURPOSES:-**

**WHEREAS**, there is a need to include somebody who has devoted time on research re energy issues, whose inputs are indispensable to the proper conduct of activities of the Technical Working Group;

**NOW, THEREFORE, I, JOHN G. BONGAT**, City Mayor of Naga, by virtue of the power and authority vested in me by law, do hereby order:


Section 4, as amended, shall now read thus "**Section 4. Technical Working Group.** In pursuit of the above purposes and functions, a Technical Working Group (TWG) is hereby constituted, to be comprised of the following:

- a. Electrical Engineering Section Chief, City Engineer's Office;
- b. Chief, Building Maintenance Office
- c. Representative from Camarines Sur Electric Cooperative (CASURECO) II
- d. Private Sector Representative with technical knowledge on energy research, development, production and distribution, to be appointed by the Mayor and confirmed by the Board.
- e. Mr. Melvin S.J. Del Puerto, of the Business Sector, to head or act as Executive Officer of the TWG, unless removed by majority vote of all members in a meeting called for that purpose, or unless he opts to be relinquished from the post or to voluntarily resign.


The TWG shall assist the Board in conducting technical studies and recommending strategies/courses of action to realize the formulation of the energy plan."

This order shall take effect immediately.

Issued this 9<sup>th</sup> day of April 2014 at the City of Naga, Philippines.

  
**JOHN G. BONGAT**  
City Mayor

Attested by:

  
**FLORENCIO T. MONGOSO, JR., CSEE**  
Department Head II and City Administrator



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**EXECUTIVE ORDER NO. 2014-008-B**

**AMENDING SECTION 2 OF EXECUTIVE ORDER NO. 2014-008,  
CREATING THE CITY OF NAGA POWER COMMISSION (CNPC) AND  
FOR OTHER PURPOSES:-**

WHEREAS, there is a need to include somebody who represents the core group which has been at the forefront of the movements and reforms in the Camarines Sur II Electric Cooperative (CASURECO II);

WHEREAS, there is also a need to include somebody whose inputs are indispensable to the proper conduct of activities of the CNPC;

**NOW, THEREFORE, I, JOHN G. BONGAT, City Mayor of Naga, by virtue of the power and authority vested in me by law, do hereby order:**

**Section 2, as amended, shall now read thus "Section 2. Composition-** The Commission shall have a governing Board of Commissioners to be composed of the following:

- Chairman, SP Committee on Consumers Protection
- Department Head, City Planning and Development Office;
- Executive Director, Jesse M. Robredo Center for Good Governance;
- Executive Director, Metro Naga Development Council;
- Manager, Camarines Sur II Electric Cooperative (CASURECO II)
- Chairperson, Naga City People's Council;
- President, Metro Naga Chamber of Commerce and Industry;
- Representative, Institute of Integrated Electrical Engineers of the Philippines;
- Mr. Domingo Claro, Representative, Consumers Group, with Mr. Samuel Flores as his permanent alternate;
- Representative, Academe

The members shall elect from among themselves a Chairman and Vice-Chairman."

This order shall take effect immediately.

Issued this 28<sup>th</sup> day of October, 2014 at the City of Naga, Philippines.




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*City of Naga*



  
**JOHN G. BONGAT**  
City Mayor

Attested by:

  
**FLORENCIO T. MONGOSO, JR., CSEE**  
Department Head II and City Administrator



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*City of Naga*



**EXECUTIVE ORDER NO. 2014-008-C**

**AMENDING SECTION 4 OF EXECUTIVE ORDER NO. 2014-008,  
CREATING THE CITY OF NAGA POWER COMMISSION (CNPC) AND  
FOR OTHER PURPOSES:-**

**WHEREAS, there is a need to include somebody who has devoted time on research re energy issues, whose inputs are indispensable to the proper conduct of activities of the Technical Working Group;**

**NOW, THEREFORE, I, JOHN G. BONGAT, City Mayor of Naga, by virtue of the power and authority vested in me by law, do hereby order:**

**Section 4, as amended, shall now read thus "Section 4. Technical Working Group. In pursuit of the above purposes and functions, a Technical Working Group (TWG) is hereby constituted, to be comprised of the following:**

- a. Electrical Engineering Section Chief, City Engineer's Office;
- b. Chief, Building Maintenance Office
- c. Representative from Camarines Sur Electric Cooperative (CASURECO)  
II
- d. Private Sector Representative with technical knowledge on energy research, development, production and distribution, to be appointed by the Mayor and confirmed by the Board.
- e. Engr. Analyn Madrid, of the Academic Sector, to head or act as Executive Officer of the TWG, unless removed by majority vote of all members in a meeting called for that purpose, or unless she opts to be relinquished from the post or to voluntarily resign.

The TWG shall assist the Board in conducting technical studies and recommending strategies/courses of action to realize the formulation of the energy plan."

This order shall take effect immediately.

Issued this 26<sup>th</sup> day of June 2015 at the City of Naga, Philippines.



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*JG*  
**JOHN G. BONGAT**  
City Mayor

Attested by:

**FLORENCIO T. MONGOSO, JR., CSEE**  
Department Head II and City Administrator



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*City of Naga*



**EXECUTIVE ORDER NO. 2015-013**

**CREATING BARANGAY POWER BRIGADES IN ALL TWENTY-SEVEN (27)  
BARANGAYS OF THE CITY OF NAGA AND FOR OTHER PURPOSES:-**

**WHEREAS**, pursuant to its mandate under the General Welfare Clause of the Local Government Code, the City Government of Naga sees the need to further strengthen its partnership with the City of Naga Power Commission (CNCPC) in its mandate to ensure operational efficiency and financial viability of the local Electric Cooperative as the power utility distributor so that power rates could be competitive and affordable to consumers, pioneering investors and business expansions in line with the city's economic development initiatives;

**WHEREAS**, there is a need to involve stakeholders at the grassroots level to provide full support to the CNPC in the implementation of its energy plans in consonance with its mission to assist the local Electric Cooperative in securing and maintaining a reliable and viable distribution system that will redound to a better and uninterrupted supply of electricity within the city limits.

**WHEREAS**, the twenty seven (27) barangays of the City of Naga are all stakeholders of the local electric cooperative as well, and are duty-bound to support the CNPC which is tasked to provide the City Government a balanced plan to ensure the energy needed for the city's economic growth and prosperity for years to come;

**WHEREAS**, it is crucial that a comprehensive and coordinated effort be initiated to ensure Metro Naga's future energy security;

**NOW, THEREFORE, I, JOHN G. BONGAT**, City Mayor of Naga, by virtue of the power and authority vested in me by law, do hereby order the following:

**Section 1. Creation and Purpose-** The Barangay Power Brigade, which is primarily tasked to provide assistance to the CNPC in its mission to assist the local Electric Cooperative secure and maintain a reliable and viable distribution system, shall be the implementing arm at the grassroots level in securing and maintaining an electric distribution line free of technical and non-technical systems loss.

**Section 2: Composition-** The Barangay Power Brigade (BPP) shall be composed of the following:

<b>Chairman:</b>	Punong Barangay (PB);
<b>Vice Chairman:</b>	Barangay Chairperson, Committee on Environment;
<b>Members:</b>	Two (2) appointed residents from each zone, or a total of Fourteen (14) private individual members.





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The President of the Lupong Tagapamaya of the barangay shall act as the adviser of the BPP.

**Section 3. Functions-** The Barangay Power Brigade shall have the following functions:

- a. Monitor, and coordinate the performance of distribution line within their coverage area, such as; power line interferences or obstruction which may cause sparks and endanger lives;
- b. Safeguard Street Lights and implement strict observance of switching them on and off following the 6pm-to-6am rule and report busted or non-operational street lights;
- c. Report suspected jumper connections and other forms of pilferages;

**Section 4. Effectivity.** This order shall take effect immediately.

Issued this 3<sup>rd</sup> day of March 2015 at the City of Naga, Philippines.

  
**JOHN G. BONGAT**  
City Mayor

Attested by:

  
**FLORENCIO T. MONGOSO, JR., CSEE**  
Department Head II and City Administrator



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**EXECUTIVE ORDER NO. 2014-007**

**CONSTITUTING THE RENEWABLE ENERGY  
WAYS or "RENEW" TASK FORCE**

**WHEREAS**, the citizens and businesses of the City of Naga rely heavily on traditional energy generation sources, which can negatively impact our environment, health, economy and security;

**WHEREAS**, traditional energy generation sources add to the existing greenhouse gas emissions that contribute to climate change and pollute the air and water; encourage reliance on large centralized power plants, making our energy resources more vulnerable to potential disruption; create more dependency on traditional energy resources; and leave us vulnerable to potentially volatile energy prices;

**WHEREAS**, renewable energy sources offer an energy alternative that would lead to improved air and water environmental quality; decrease our dependence on traditional energy sources and susceptibility to potentially volatile traditional energy markets; decrease our reliance on centralized power plants; ease the strain on our energy infrastructure; offer opportunity for job creation and economic development by attracting these emerging industries to the City of Naga; and, when considering all costs to society, are less costly than traditional energy sources;

**WHEREAS**, this Administration recognizes these benefits, and is dedicated to promoting the use and production of renewable energy;

**WHEREAS**, the "Renewable Energy Act of 2008" specifically requires the National Renewable Energy Board (NREB) to adopt renewable energy portfolio standards ("RPS") to ensure each electric power supplier and basic generation service provider supplies electricity from renewable energy sources in the electricity sold to retail customers;

**NOW, THEREFORE, I, JOHN G. BONGAT**, Mayor of the City of Naga by virtue of the authority vested in me by law, do hereby order the following:

**Section 1.** A body to be called the Renewable Energy Ways (RENEW) Task Force is hereby constituted to examine the feasibility of establishing renewable energy infrastructure or facilities in Naga City. Renewable energy facilities includes



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*City of Naga*



those facilities capable of producing energy from solar, photovoltaic, geothermal or wind technologies, fuel cells, and methane gas from landfill or biomass/biogas, waste-to-energy facilities, provided that the biomass/biogas is cultivated and harvested in a sustainable manner.

**Section 2.** The RENEW Task Force shall be chaired by the Chairman, Sangguniang Panlungsod (SP) Committee on Energy, and co-chaired by the Head, City Solid Waste Management Office (SWMO) composed of five (5) members, as follows:

- Head, City Planning and Development Office;
- Head, City Environment and Natural Resources Office;
- Executive Officer, Public Safety Office;
- Head, City Assessor's Office
- Chairperson, Naga City People's Council,

Who shall elect a Vice Chairperson from among themselves.

**Section 3.** The Task Force shall have the following roles and responsibilities:

- a. assess the costs, benefits, uncertainties, market potential and opportunities for promoting sustainable alternatives to traditional energy resources, including clean and renewable energy resources for electric generation and other energy requirements, distributed generation technologies, cogeneration technologies, energy efficiencies, demand management, and biofuels which are reasonably available for satisfying energy supply requirements;
- b. solicit proposals from companies and/or investors qualified and experienced in the development and operation of renewable energy resources;
- c. pre-evaluate submitted proposals as well examine the profiles of companies intending to establish renewable energy infrastructures/facilities in the city and recommend action to be taken by the local chief executive;
- d. in view of the enormous increase in the quantity and diversity of waste materials generated by the Nagueños being disposed at the solid waste dumpsite in Balatas, the Task Force shall:
  - i. devise general directions for the disposal of general waste being dumped therein and the conversion of the same to useful energy through the employment of waste-to-energy technologies;
  - ii. examine the waste holding capacity of the dumpsite;
  - iii. establish a two-year (short-term) plan to improve the present state of the dumpsite



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- e. Provide a preliminary estimate of the possible cost and other impacts on the city's electricity consumers that may result from the Task Force's recommendations and proposals; and examine other related issues.

**Section 4.** The RENEW Task Force is authorized to call upon any department, office, division and agency of city government to provide such data, information, material, personnel and assistance as deemed necessary to discharge its responsibilities under this Order. Each department, office, division and agency of city is hereby required, to the extent not inconsistent with law, to cooperate with the Task Force and to furnish it with such information, personnel and assistance as is necessary to accomplish the purpose of this Order.

The Task Force may also call for the assistance of the academe and interest groups in the discharge of its responsibilities.

**Section 5.** This Order shall take effect immediately.

ISSUED this 25<sup>th</sup> day of February, Two Thousand and Fourteen in the City of Naga, Philippines

  
**JOHN G. BONGAT**  
City Mayor

Attested by:

  
**FLORENCIO T. MONGOSO, JR., CSEE**  
Department Head II and City Administrator

# ENERGY CONSERVATION WEEK







