

Taipower's Coal Demand, Procurement and Investment



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At the 17th Meeting of Taiwan-Australia Joint Energy and Minerals Trades and Investment Consultations



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Outline

1. Installed Capacity and Electricity Generation
2. Coal-Fired Power Units
3. Coal Demand and Procurement
4. Overseas Coal Mine Investment
5. Viewpoints on Australian Coal
6. Conclusion



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Annual Growth Rate for GDP & Electricity in Taiwan (program 9910)

Year	GDP Annual Growth Rate	Electricity Annual Growth Rate
2010 - 2014	4.51%	3.6%
2015 - 2019	4.24%	3.2%
2020 - 2024	3.90%	2.5%
Average (2010 - 2024)	4.22%	3.1%



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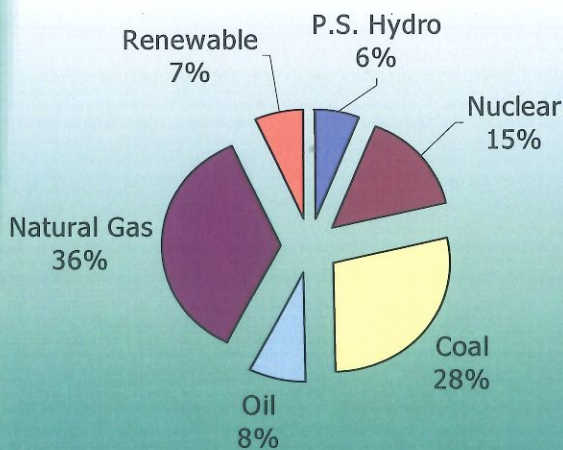
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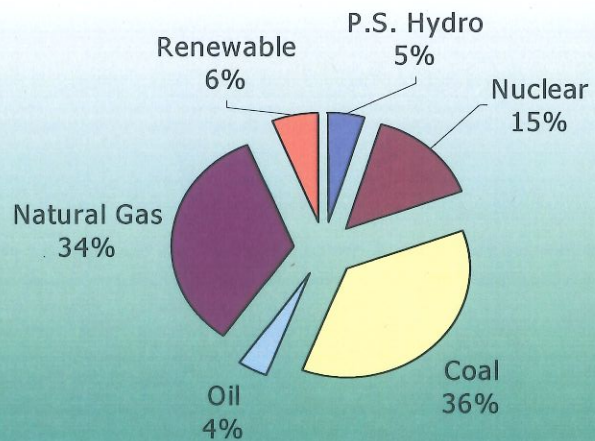
Make-up of Installed Capacity in Taiwan (program 9910)

2011

2021



Total: 42,308MW



Total: 53,715MW

(The Installed Capacity Excludes Co-gen's Capacity)



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Composition of Installed Capacity in Taiwan (program 9910)

Year	Taipower		IPP		Total	
	MW	%	MW	%	MW	%
2011	33,850	80.0	8,458	20.0	42,308	100
2016	37,214	81.0	8,704	19.0	45,918	100
2021	44,951	83.7	8,764	16.3	53,715	100



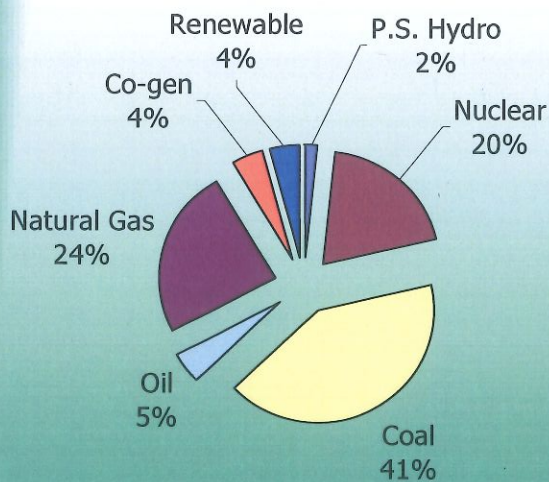
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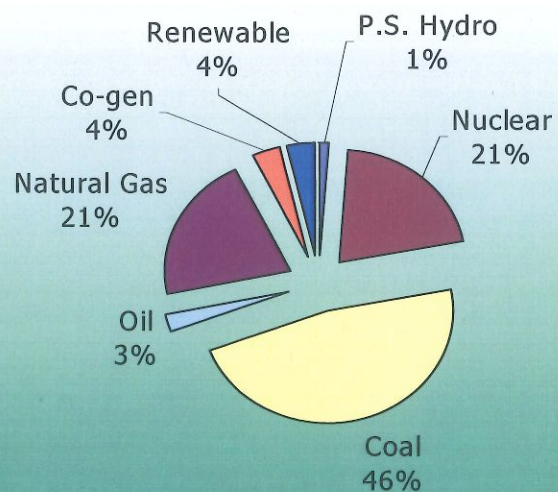
Make-up of Electricity Generation in Taiwan

2011



Total: 206,400Gwh

2021



Total: 290,000Gwh



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Composition of Energy Generation In Taiwan (program 9910)

Type	Taipower		Purchased Power		Total	
Year	Gwh	%	Gwh	%	Gwh	%
2011	155,900	75.5	50,600	24.5	20,640	100
2016	199,800	79.2	52,400	20.8	25,210	100
2021	237,400	81.9	52,600	18.1	29,000	100

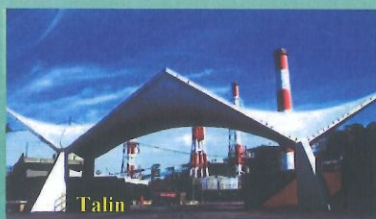
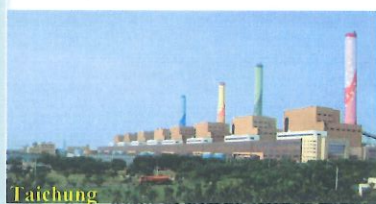


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Taipower's Coal-Fired Power Station



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Taipower's Existing Coal-fired Units

Power Plant	Capacity (MW)	Commercial Year
Linko #1 , #2	300*2	1968 & 1972
Taichung #1 - #10	550*10	1990 - 2005
Hsinta #1 - #4	500*2(#1,#2) 550*2(#3,#4)	1982 - 1983
Talin #1 , #2	300*2	1969 & 1970
Total	8,800	

Existing IPP Coal-Fired Units

Power Plant	Fuel Type	Capacity (MW)	Commercial Year
Mailiao #1 - #3	Coal	600*3	1999 - 2000
Hoping #1 , #2	Coal	648.5*2	2002

Taipower's Coal-fired Units Under Planning

Power Plant	Capacity (MWe)	Scheduled Operation Year
Linkou New #1 - #3	800*3	2015 , 2016 , 2020 (have passed EIA)
Talin New #1, #2	800*2	2016 , 2017 (have passed EIA)
Shenao New #1 , #2	800*2	2018 , 2019 (have passed EIA)
Changong #1 , #2	800*2	2018
Taichung #11 , #12	800*2	2019 , 2020
Total	8,800	



Taipower's Procurement Tonnage by Term Contracts and Spot Purchases

Unit: 1,000MT

Year Contract	2009		2010		2011(forcast)	
	Term	21,486	86 %	19,753	78 %	20,970
Spot	3,390	14 %	5,573	22 %	6,130	23%
Total	24,876	100%	25,326	100 %	27,100	100 %

Remarks: In 2010, there are 43 term contracts with 16 suppliers and 77 spot contracts with 11 suppliers.



Sources of Thermal Coal Imports At Taipower

Unit: 1,000MT

Country \ Year	2009		2010		2011(forecast)	
	Quantity	Percentage	Quantity	Percentage	Quantity	Percentage
Indonesia	14,435	58 %	14,618	58 %	16,450	60 %
China	2,383	10 %	2,038	8 %	1,270	5 %
Australia	7,730	31%	8,670	34 %	9,100	34 %
Russia	328	1%	0	0 %	280	1 %
Total	24,876	100 %	25,326	100 %	27,100	100 %

Sources of Thermal Coal Imports In Taiwan

Unit: 1,000MT

country \ Year	2008		2009		2010	
	Quantity	Percentage	Quantity	Percentage	Quantity	Percentage
Indonesia	23,550	40%	23,620	40%	23,514	41%
Australia	23,560	40%	22,090	41%	24,241	42%
South Africa	0	0%	2,290	4%	2,576	4%
China	10,740	18%	4,420	8%	3,871	7%
Russia	0	0%	0	0%	1,085	2%
Others	1,040	2%	1,960	4%	2,184	4%
Total	58,890	100%	54,380	100%	57,471	100%

Remarks: This table does not include anthracite and coking coal.

Thermal Coal Demands in different Industries in Taiwan

Unit: Million MT

Industry	2009	2010
Power Generation	35.7	35.0
Petrochemistry Industry	12.0	12.0
Steel Industry	1.2	4.7
Chemical Fiber Industry	2.7	2.9
Cement Industry	1.8	1.8
Papermaking Industry	0.7	0.7
Brick Industry	0.3	0.4
Total	54.4	57.5

Remarks: This table does not include anthracite and coking coal.



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Taipower's Coal Demand Forecast (program 9910)

Year	Coal (Million MT)
2010	25.77(Actual)
2011	27.10
2012	26.76
2013	22.33
2014	23.85
2015	24.93
2016	26.46
2017	29.06
2018	36.04
2019	39.36
2020	42.33
2021	44.73



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Government Procurement Act("the Act")

1. As a state-owned power company, Taipower's procurement tenders shall be governed by the Government Procurement Act ("the Act")
2. The tendering procedures stipulated in the Act are limited to :
 - Open tendering
 - Selective tendering
 - Limited tendering



Taipower's Coal Procurement

1. Procurement procedures : international tender
 - Term tenders:
 - Selective tendering, pre-qualification (PQ) is required (2nd year onward, limited tendering)
 - Spot tenders:
 - open tendering, PQ is not required
2. Qualification of bidders:
 - Term tenders:
 - Coal mine owner or producer, or a wholly- owned sales company of a coal mine owner or producer
 - Spot tenders:
 - Coal mine owner, producer, agent and trading company



Taipower's Coal Procurement Strategy

1. Diversification (supply limit):

> Term Contracts

Country: 35% (For 2011&2012)

Supplier: 15% (For 2011&2012)

> China: 30% (including term & spot)

2. Inventory:

30(statutory) - 45 days(planned)

3. Term Contracts supplemented by Spot Contracts

> Term: 60-85% (80% for 2011&2012)

Spot: the remaining



Quality Specifications for Taipower's Term Tenders

Item	General Bituminous Coal		Low-Ash & Extra Low-Sulphur Subbituminous Coal	General Subbituminous Coal
	Quality A	Quality B2	Quality C2	Quality D
Gross Calorific Value (kcal/kg, A.R.) Min.	5,900	5,500	5,000	
Total Moisture (% , A.R.) Max.	1. 15.00 2. 18.00, if Ash < 10%	1. 15.00 2. 20.00, if Ash < 10%	28.00	
Ash Content (% , A.D.) Max.	16.00		4.00	15.00
Sulphur Content (% , A.D.) Max.	1.10		0.20	1.10
Volatile Matter (% , A.D.) Min.	26.00			28.00
Fixed Carbon (% , A.D.) Max.	60.00			
Grindability (H.G.I.) Min.	45	42	45	42
Ash Fusion Temperature (°C, H=W) Min.	1,150			
Size (m.m.) Max.	> 50m.m. 5%			
	< 2m.m. 35%			
Na ₂ O in Ash (% , Max.)	1. 2.00 2. 5.00 if CaO+MgO > Fe ₂ O ₃ and CaO+MgO+Fe ₂ O ₃ > 20%			



Quality Specifications for Taipower's Spot Tenders

Item	General Bituminous Coal	Low-Ash & Extra Low-Sulphur Subbituminous Coal	General Subbituminous Coal
	Quality II-2	Quality III-2	Quality IV
Gross Calorific Value (kcal/kg, A.R.) Min.	5,500	5,000	
Total Moisture (% , A.R.) Max.	1. 15.00 2. 22.00, if Ash < 10%	28.00	28.00
Ash Content (% , A.D.) Max.	15.00	4.00	15.00
Sulphur Content (% , A.D.) Max.	1.10	0.20	1.10
Volatile Matter (% , A.D.) Min.	28.00		
Fixed Carbon (% , A.D.) Max.	60.00		
Grindability (H.G.I.) Min.	42	42	42
Ash Fusion Temperature (°C, H=W) Min.	1,150		
Size (m.m.) Max.	> 50m.m. 5%	> 50m.m. 5%	> 50m.m. 5%
	< 2m.m. 30%	< 2m.m. 35%	< 2m.m. 30%
Na ₂ O in Ash (% , Max.)	1. 2.00 2. 5.00 if CaO+MgO > Fe ₂ O ₃ and CaO+MgO+Fe ₂ O ₃ > 20%		



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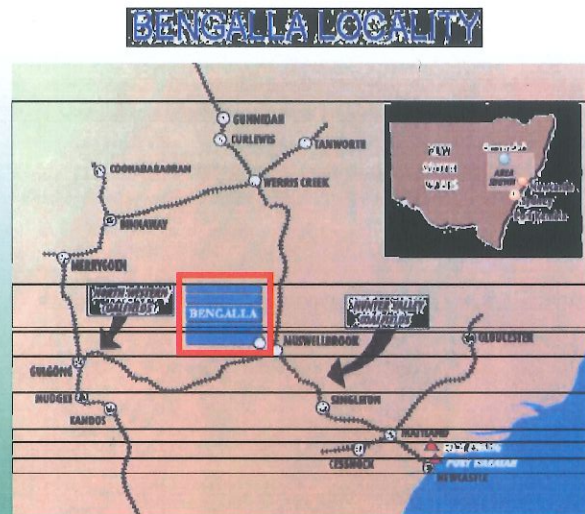
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Taipower's Overseas Coal Mine Investment

1. Bengalla project :
ROM 7.8 million MT/Year ;
10% interest
2. Formulated principles and screening guidelines
3. Welcome more investment opportunities

Potential Projects (since '08)	
Reviewed No.	Under Review
13 (7 confidentiality agreements)	3



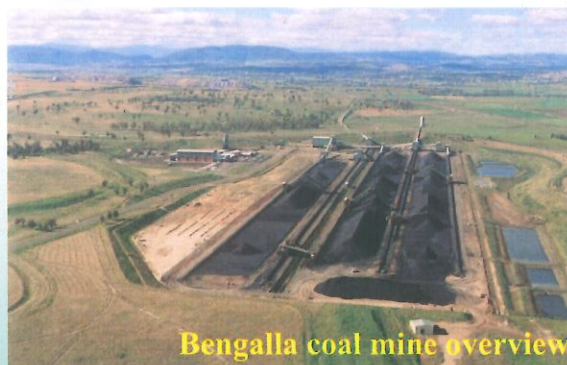
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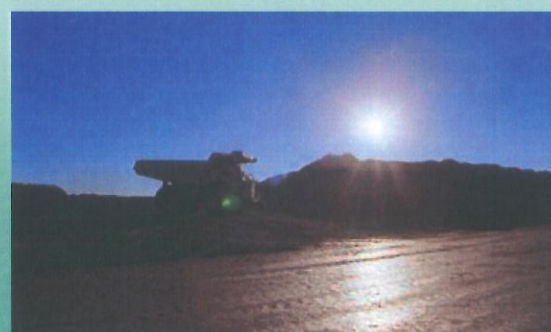
The Principles

1. Economically viable
2. Quality meets Taipower's requirements
3. Experienced partners
4. Not the biggest shareholder
5. $LTC \leq 15\%$ of Taipower's annual procurement and uniform upper limit
6. A seat in the Board of Directors



Screen-out Guidelines

1. Not meet above Principles
2. No valid exploration / development permit
3. Neither reliable geological data nor coal seam data is available
4. Production < 2 million MT/yr ; reserves < 10 years
5. No practical plan for export
6. Against Taipower's interest or government policies



Taipower's Viewpoints on Australian Coal

1. With abundant coal reserves, political & economic stability and sound infrastructure, Taipower regards Australia as one of **major reliable sources for coal supply** and mine project **investment**.
2. The growth of Australian coal export is **restricted by railway and port capacity**. Reliability of Australian coal supply might be impacted and **buyers be burdened by additional cost of freight and demurrage**, if port congestion could not be improved.



Conclusion

- 20~30% Taiwan electricity contributed by Australian energy resources.
- This joint consultation meeting, an effective vehicle for enhancing the bilateral relationship.
- Welcome to participate in Taipower's procurement tenders, and offer investment opportunities for coal mine.



Thank you



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Q&A

Q1: What impact will the Energy Policy review have on Taiwan's coal demand?

- New Energy Policy is being reviewed.
- Nuclear Power is one of the major concerns.
- Coal-fired will be base-load
- LNG-fired is the substitution for power shortage or nuclear power decrease
- May not impact on Taiwan's coal demand



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Q&A

Q2: What are Formosa Corporation and Taipower's future coal procurement?

Year	Coal (Million MT)	
	Taipower	FPG
2011	27.10	19.5+11.0
2012	26.76	19.5+11.0
2013	22.33	20.0+11.0
2014	23.85	20.0+3.0+11.0
2015	24.93	20.0+3.0+11.0
2016	26.46	20.0+3.0+11.0
2017	29.06	20.0+3.0+11.0
2018	36.04	20.0+3.0+11.0
2019	39.36	20.0+3.0+11.0
2020	42.33	20.0+3.0+11.0
2021	44.73	20.0+3.0+11.0



Q&A

Q3: Can Taiwan clarify the process required for Australian coal companies interested in participating in coal tender?

For Term Tender:

- PQ procedure begins in February every year.
- Owner, Producer or Wholly-owned sales company can apply.
- Qualified Suppliers List sets up in August.
- Term tenders conducts from September.

For Spot Tender:

- Spot tenders conducts regularly.
- Owner, Producer, Wholly-owned sales company or trade can participate in.

Send your request to d0090401@taipower.com.tw

