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# **Energy Sources and Utilization in Iraqi Kurdistan Region**

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KURDISTAN



Coat  
Of  
Arms  
of  
Iraq

## Iraqi Kurdistan

Flag of Kurdistan



Coat of Arms of Kurdistan



# KURDISTAN



6/26/2012

Kurdistan Region- Ministry of Electricity

# KURDISTAN



# KURDISTAN



# About Kurdistan Region

- Area:  $\geq 40,643$  Sq KM
- Population: 4.7 Million
- Population growth rate: 2.618%
- GDP: 12 Billion US\$
- GDP per Capita : 2,550 US\$
- Economic Growth rate:  $\geq 10\%$
- Economic Activity: Oil, Natural Gas, Cement, Agriculture and tourism.

# Energy Sources and Utilization in Kurdistan -1-

- Kurdistan region is one of the most abundant region for the energy.
- Kurdistan region's economy is dominated by the oil industry, agriculture and tourism. Due to relative peace in the region it has a more developed economy in comparison to other parts of Iraq.
- Available Resources in Kurdistan: Natural gas, oil, long summer sunlight, wind, mountainous and rivers considered to be the main recognized sources for the energy.
- Due to the political background of the region at the last 13 years prior to Iraqi freedom operation the region remained unresponsive to the demand of the energy needs “It cause a very high growth rate: CAGR for 2006-2011 is 14%” and now is higher.
- The Kurdistan Oil and Gas Law were approved on August 6, 2007, by the Kurdistan National Assembly. Kurdistan Region receives 17% of all revenues from all oil production in all of Iraq.



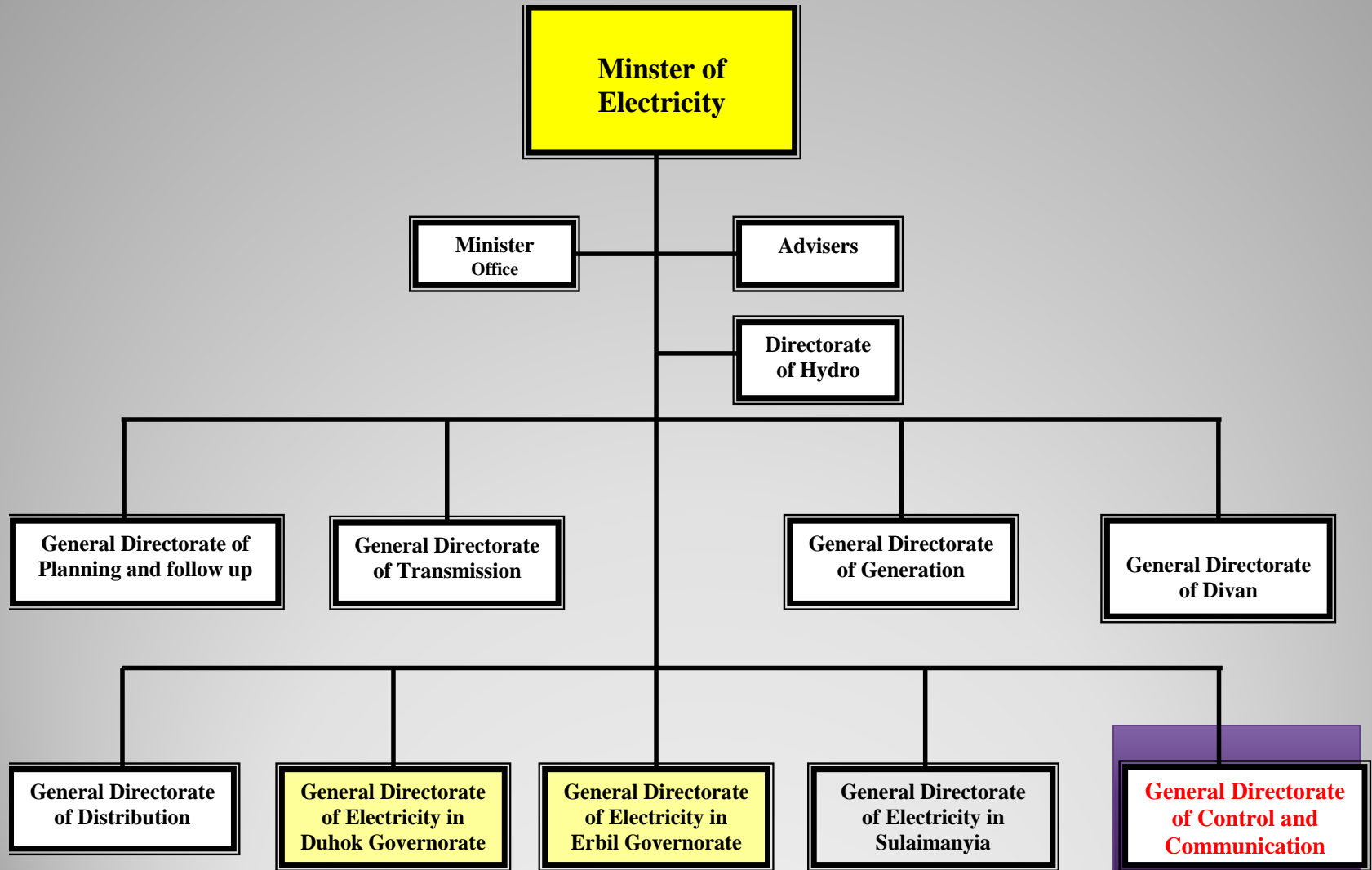
## Energy Source and Utilization in Kurdistan -2-

### • KRG oil and gas contracts:

- The KRG has signed oil & gas production sharing contracts under the Iraqi Constitution and the Kurdistan Oil and Gas Law.
- KRG announces 461 million square foot site for Kurdistan Gas City"2008"
- KRG and Korea National Oil Corporation sign new petroleum contracts"2008"
- KRG signs petroleum contracts with Talisman Energy"2008"
- KRG signs five more petroleum contracts "2007"
- Ministry of Natural Resources announces seven new petroleum contracts for Kurdistan Region, reviews five existing contracts "2007".
- KRG signs oil and gas contract with US-based Hunt Oil"2007"
- Kurdistan Regional Government supports draft Federal Oil Law"2007"

## Energy Source and Utilization in Kurdistan -3-

- The shortage of the other energy production like oil and natural gas for heating people adhered to depend on the electrical power as a major energy source. Meanwhile electrical power product partially depends on the availability of such energy sources like natural gas. So the governmental sector of electricity is dealing with the most difficult challenges at the present time.
- The electrical power demand is more than 3,000 MW in Kurdistan region while only 2,100 MW is available in February 2012.








IRAQ

Strategy

Northern Governorates of Iraq  
(Dohuk, Erbil And Suleimaniyah)



-  **Exist Hydro PP**
-  **Exist diesel PP**
-  **Exist HF. PP**
-  **Exist Gas PP**
-  **PP Under construction**

29 MW Diesel P.P

500MW Dohuk PP

Dohuk

150MW  
Baadre PP

Erbil

29 MW Diesel P.P

1000 MW Erbil  
PP

Dokan HPS  
5x80MW

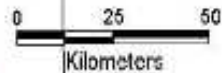
51MW PP

29 MW Diesel P.P

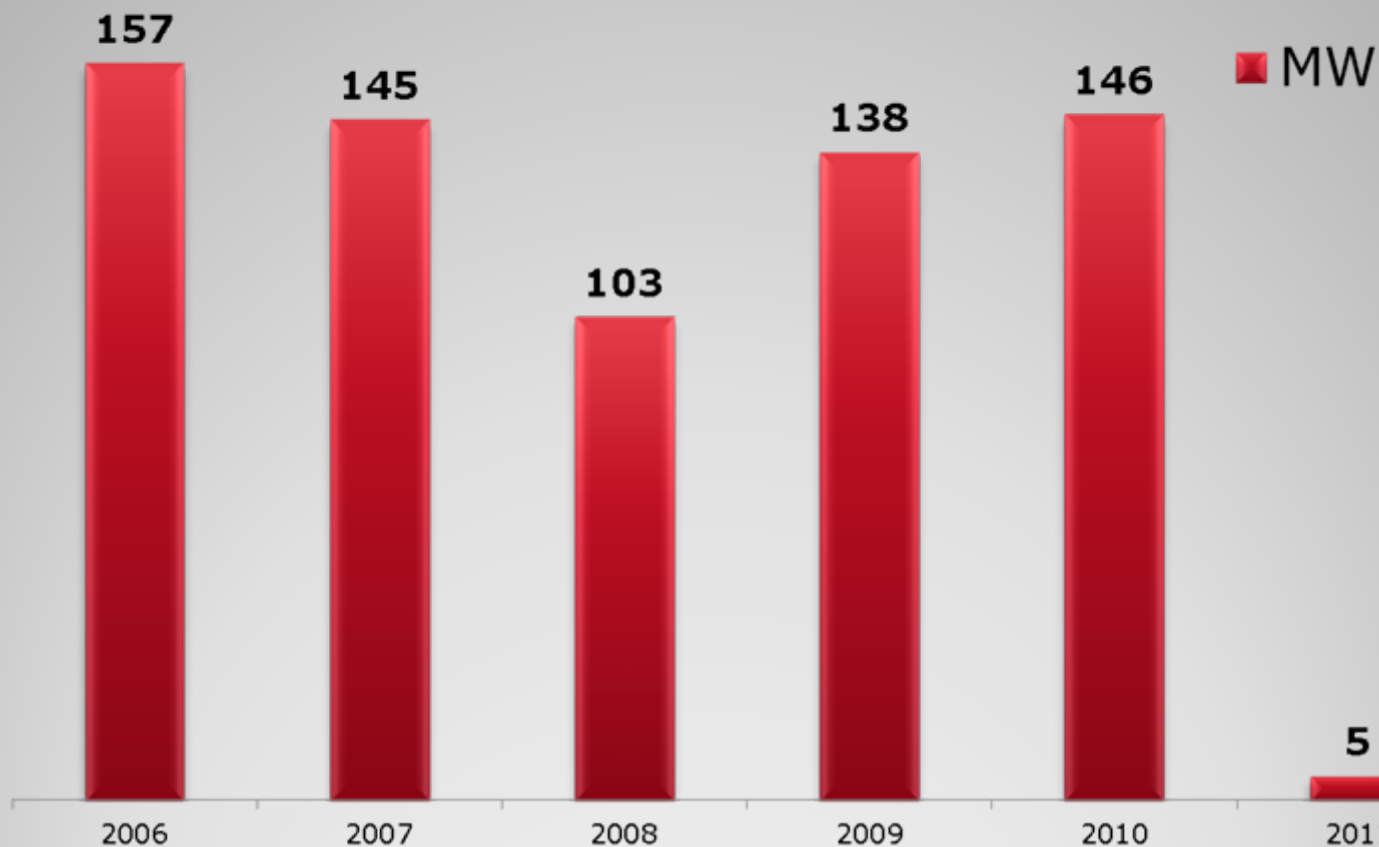
750MW Sulaimani  
PP

Sulaimani

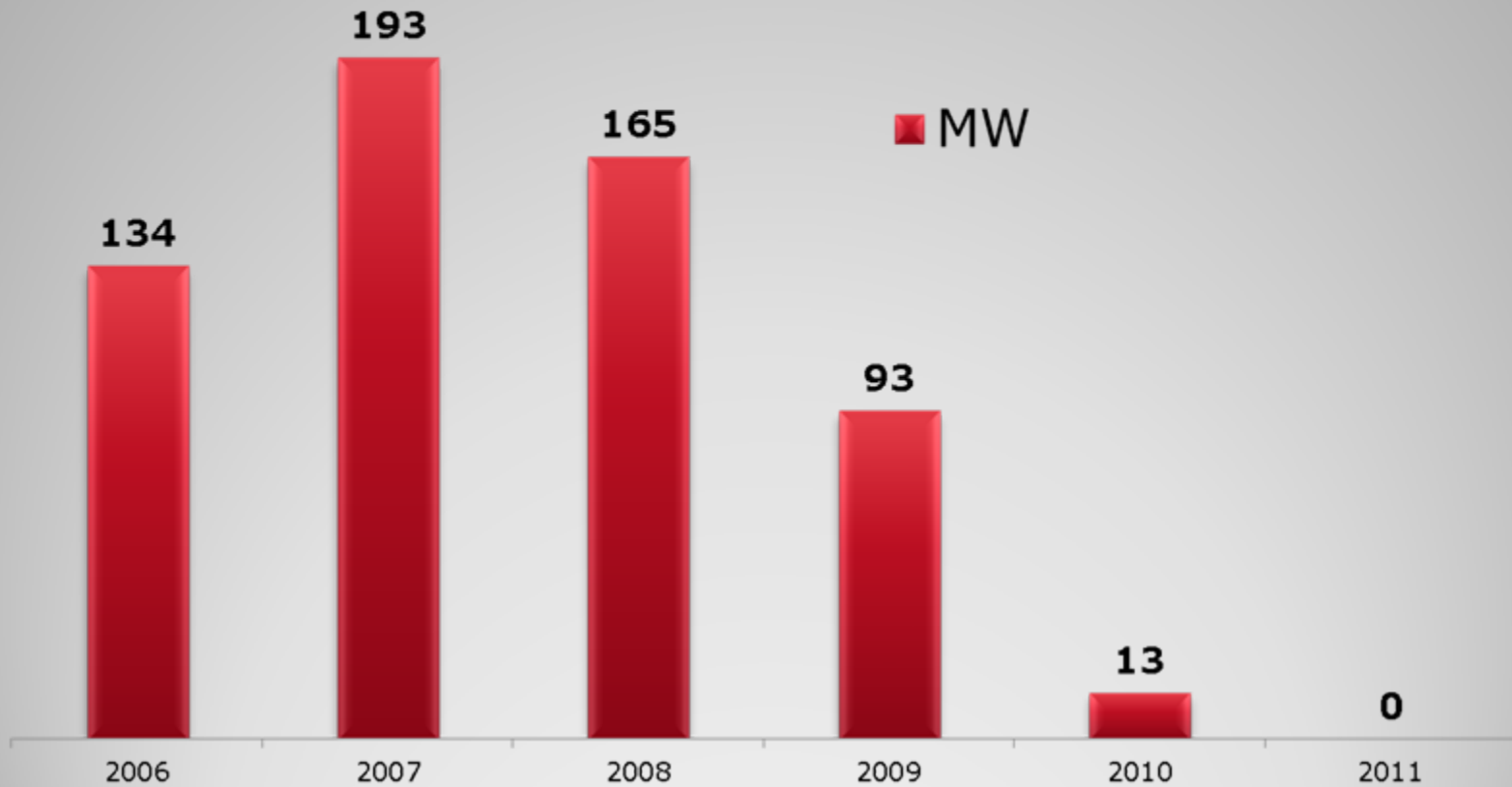
Darbadikhan HPS  
3x83MW



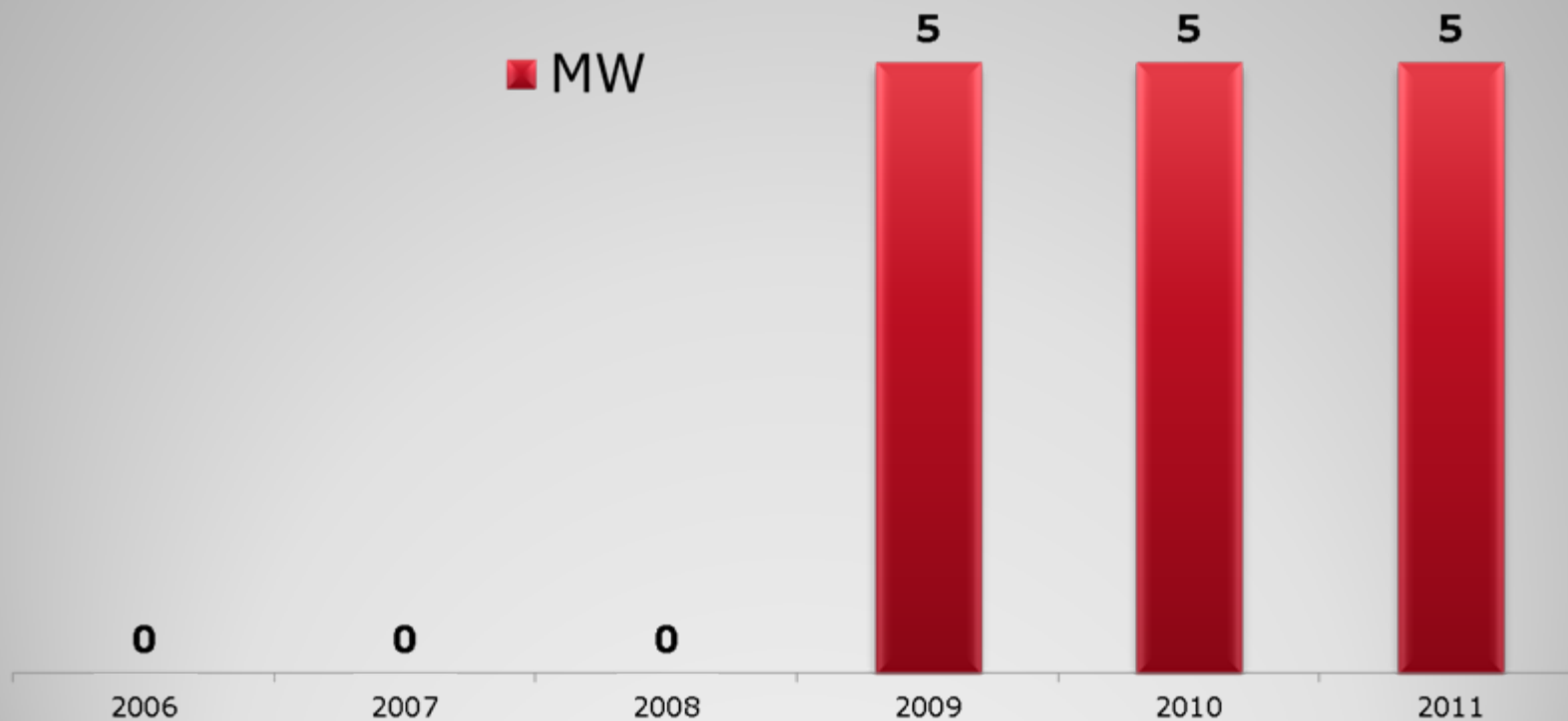
# Imported from Turkey



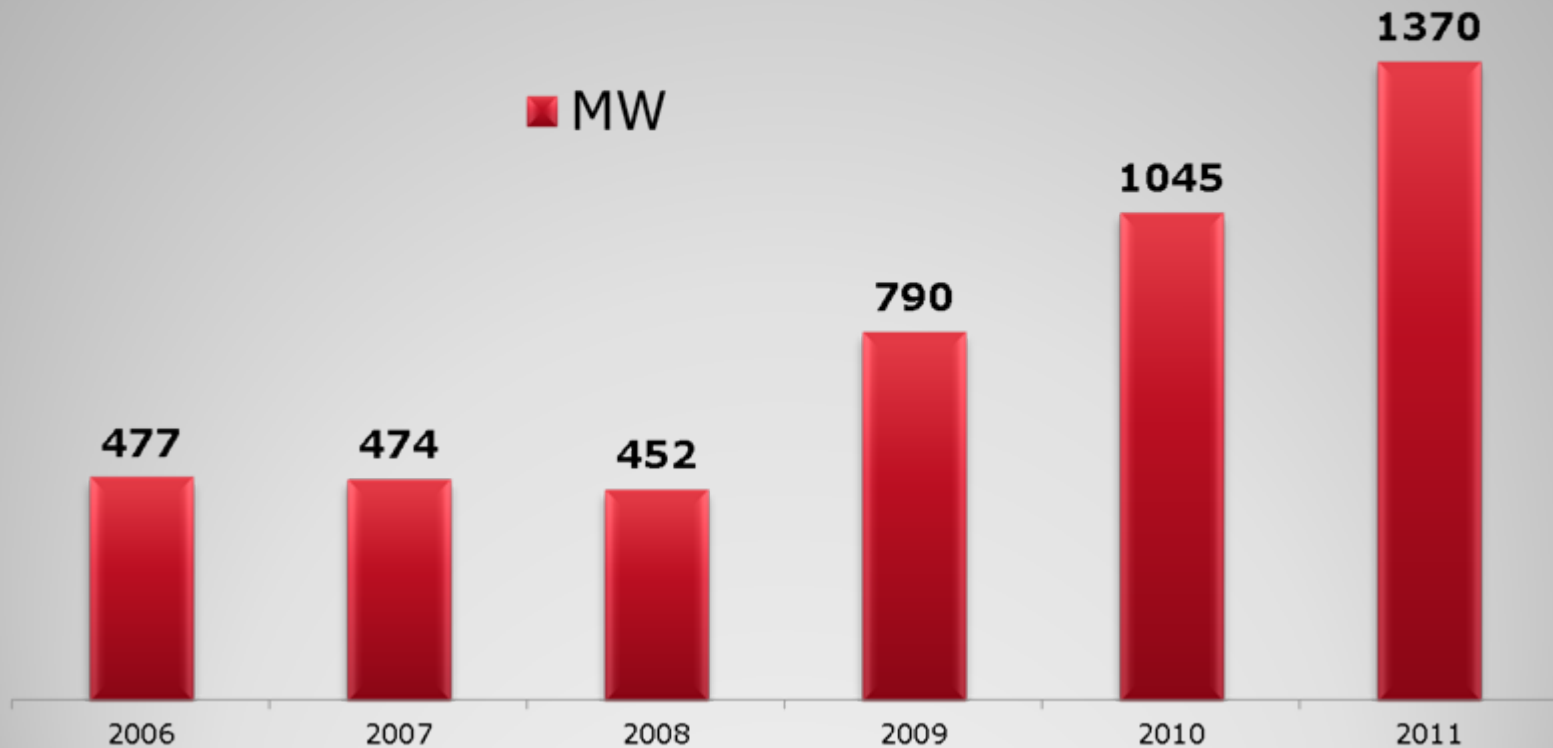
# Imported from Iraqi National Grid



# Imported Power from Iran

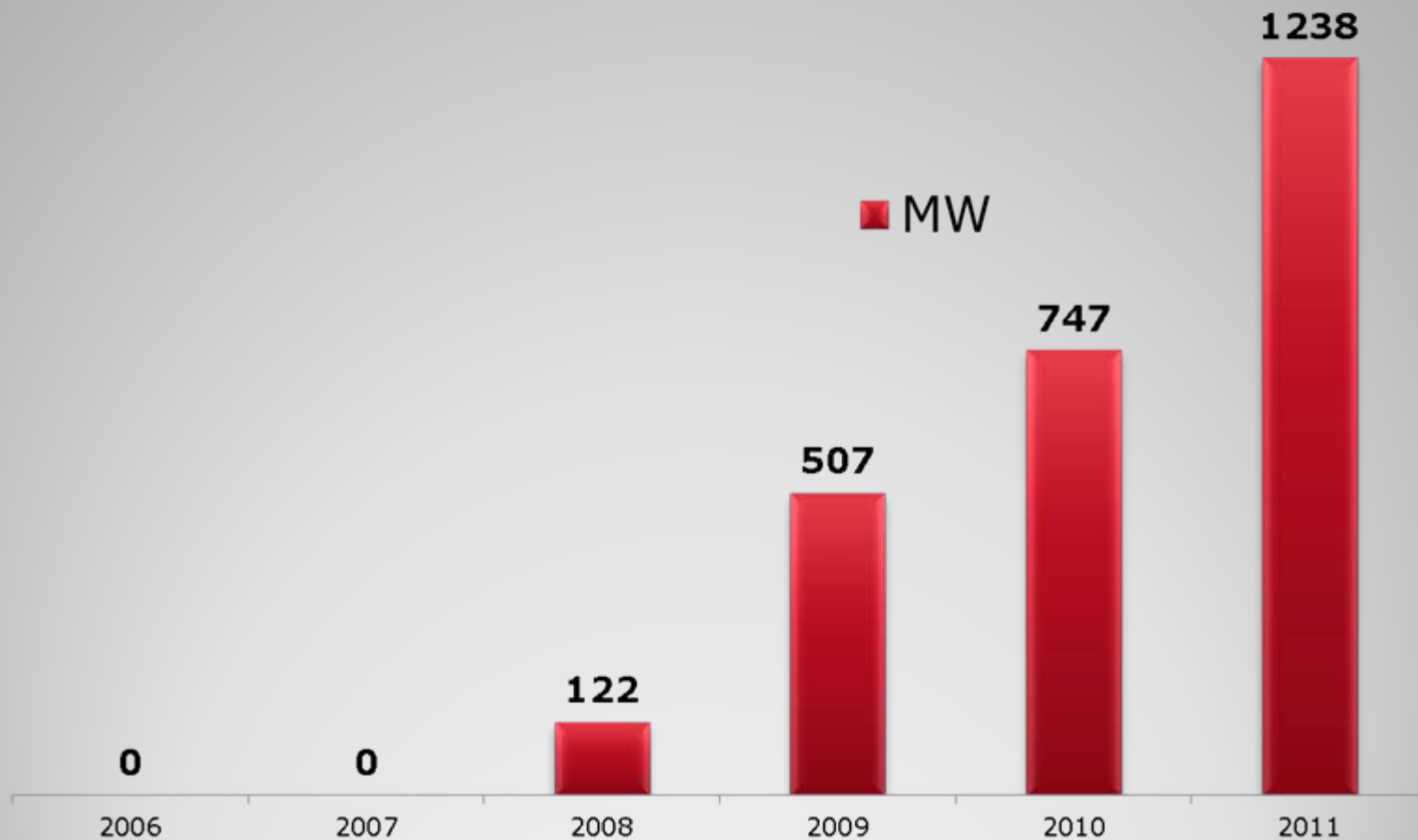


# Electricity Generation in Kurdistan Region

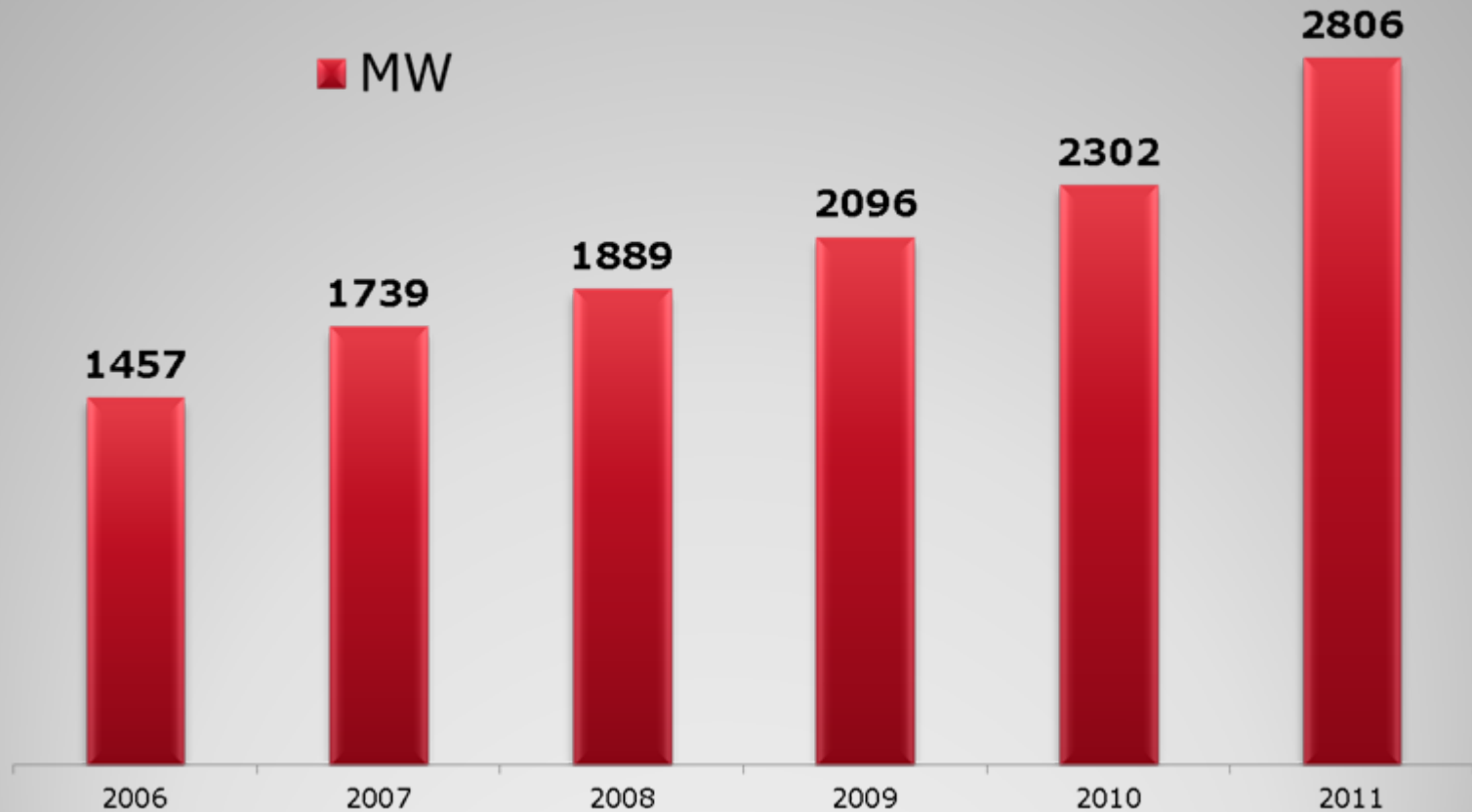




# Generation by GPPs



# Max. Demand in Kurdistan



# Kurdistan Power Network

- No. Of Power Plants: 6
- No. 132 KV Substation: 30
- Nr. 33 KV Substation: 92



## STRATEGIES:

Two strategies are performed for solving the electrical problems in Kurdistan.

One is a short term strategy for production of electricity form the natural gas and oil residues for power generation and establishing a functional transmission line network to connect the newly established generation stations with the center of cities simultaneously installing a control system to the entire region finally improving the distribution network inside the cities to ensure appropriate power delivery for the end users.

# STRATEGIES:

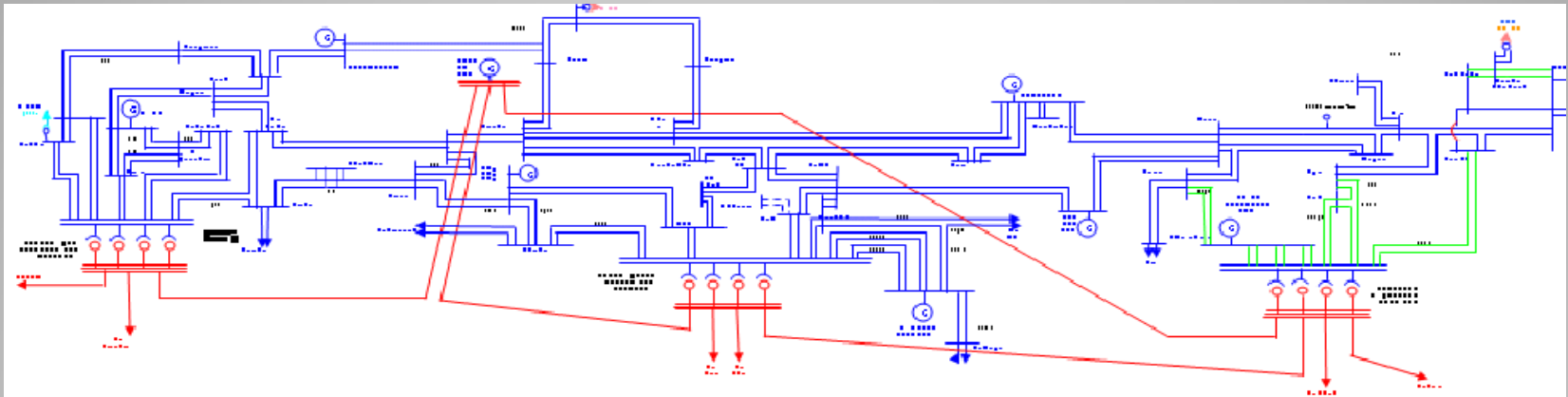
## Long term strategy:


- Constructing new dams on the rivers.
- Ensuring gas and oil for heating to decrease loads on electrical power by the households.
- Increase natural gas power generation stations.
- To plan and think about the sunlight and wind power utilization.
- To plan a strategy for energy efficiency “House Insulation” and “Demand Side Management”.
- Privatization of electricity sector.

# Large Dams and Hydropower projects feasibility study & re-evaluations

project name	installed & revised capacity MW	cost estimation for 1MW ( million dollars)	cost estimation for electrical work ( million dollars)	proposed construction time in years
<b>Bekma dam</b>	<b>1500-650</b>	<b>0.5</b>	<b>750</b>	<b>8</b>
<b>Taq – taq dam</b>	<b>400- 270</b>	<b>0.6</b>	<b>162</b>	<b>6</b>
<b>Bakerman dam</b>	<b>52.5</b>	<b>1</b>	<b>43</b>	<b>5</b>
<b>Mandawa dam</b>	<b>764</b>	<b>0.5</b>	<b>382</b>	<b>6</b>
<b>21 Small dams</b>	<b>900</b>	<b>1</b>	<b>700</b>	<b>7</b>

# 400KV – 132KV Proposed Diagram in Kurdistan



١٣٢ ڤا ١١٠ ڤا ١١٠ ١٣٢ ڤا ١١٠ ڤا ١١٠ ١٣٢ ڤا ١١٠ ڤا ١١٠ ١٣٢ ڤا ١١٠ ڤا ١١٠	 EXISTING & Proposed 132KV Sqr. m up to 132KV and of year 2012
132 to 110 kV	—
Power Transformer	⊙
132 to 110 kV Bus	—
110 kV Bus	⊙

منطه اعلي پودنه المنطقه السهلتي المقترحة التي تقيده 400 و 132 كلف  
 للمخططات ٢٠١٢ اربيل و السليمانيه



# Thanks

ありがとうございました

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