



“ENERGY MONGOLIA 2014”

NATIONAL DISPATCHING CENTER OF
POWER ENERGY SYSTEM



CLOSELY COORDINATION DISPATCHING REGULATION WITH TARIFF POLICY

*Ts. ONORMAA, onormaa@ndc.energy.mn,
A.SAMBUUDAGVA, consultant
G.BALJINNYAM, baljaa@ndc.energy.mn,
Ts.BAYARBAATAR, bayarbaatar@energy.gov.mn,*

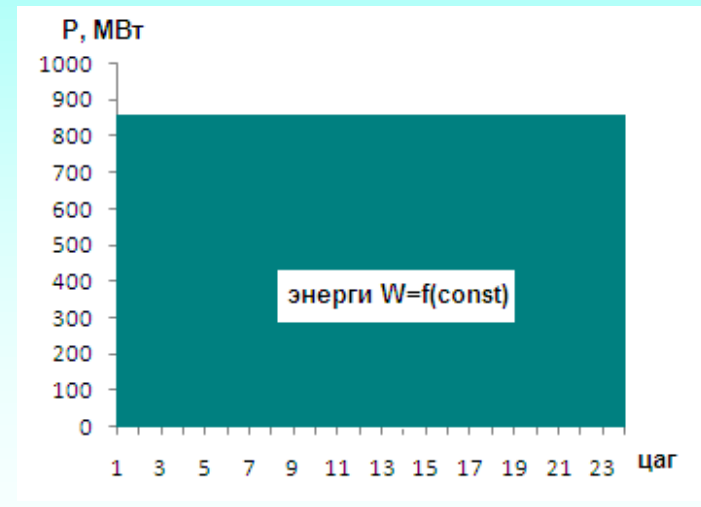
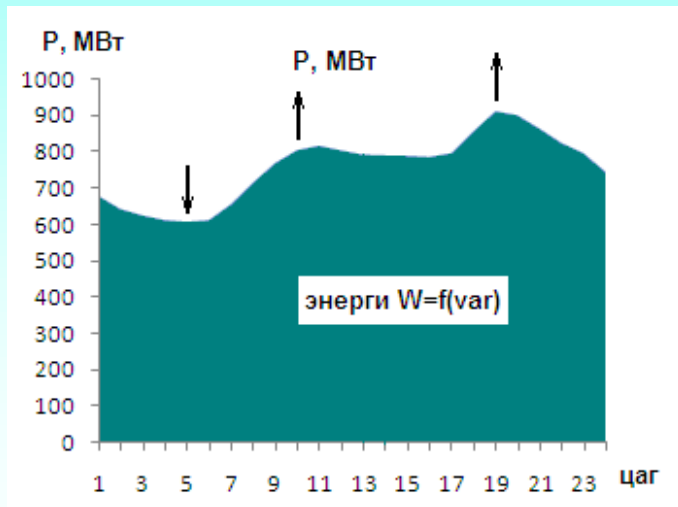
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OBJECTS

- Main basic of summarized process of reliability and stability activities of energy system that is dispatching regulation with based on estimation, plan is closely real situation, and correct decision.
- Our country has a greatly resource of renewable energy. Future development trend is considering supporting green energy or renewable energy. But, currently we haven't regulation generation sources therefore in dispatching regulation is coming difficult condition.
- Economical support for dispatching regulation is tariff adjustment. The tariff adjustment is support reliability and stability activities of energy system it is without regulation generation sources with balance on variable zone of load curve and depend on import.
- Proposed “Smart tariff” seeks to strike a balance between the interests of consumers and the interests of providers of energy. The tariff's implementation is expedience.

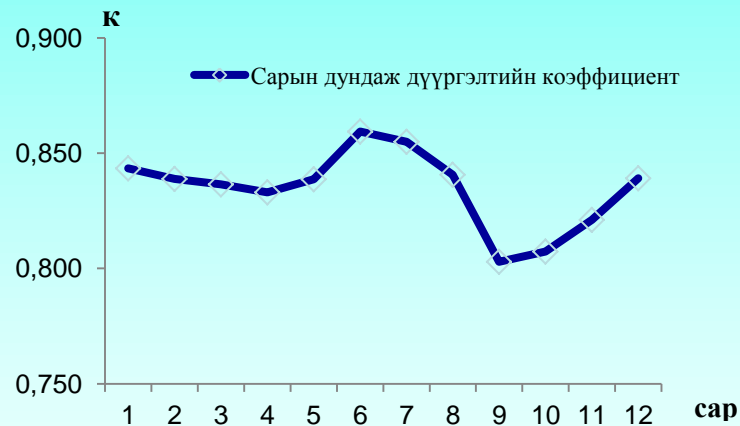
IMPACTING FACTORS TO THE DAILY LOAD – TARIFF

- Load curve filling coefficient, %
- Morning off-peak value, MW
- Afternoon off-peak value, MW
- evening peak load value, MW
- variable zone
- peak time



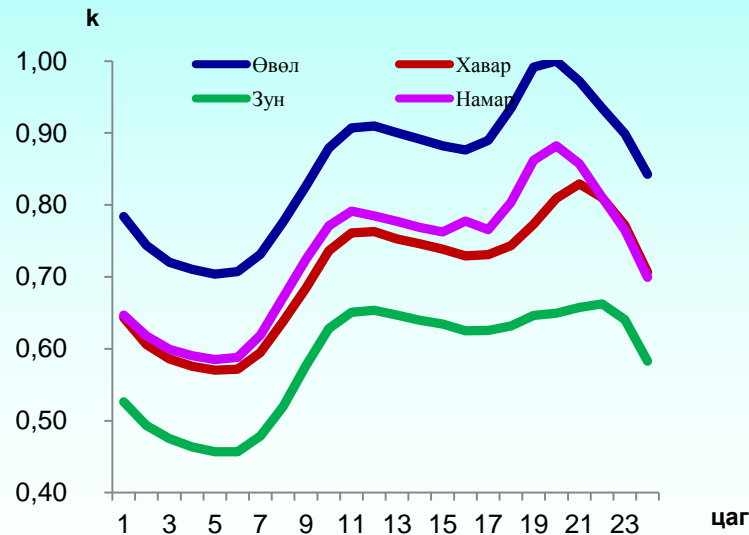
FILLING LOAD COEFFICIENT

Months	2010	2011	2012	2013	Average filling coefficient
1	0,850	0,843	0,840	0,841	0,843
2	0,841	0,834	0,842	0,838	0,839
3	0,851	0,834	0,835	0,826	0,837
4	0,840	0,834	0,829	0,830	0,833
5	0,841	0,841	0,842	0,832	0,839
6	0,859	0,861	0,862	0,855	0,859
7	0,876	0,833	0,862	0,848	0,855
8	0,853	0,821	0,855	0,834	0,841
9	0,809	0,801	0,807	0,794	0,803
10	0,815	0,807	0,808	0,799	0,807
11	0,822	0,823	0,825	0,814	0,821
12	0,839	0,843	0,848	0,826	0,839
Average	0,841	0,831	0,838	0,828	0,835



RELATION OF SUPPLIED TO MARKET ENERGY AND FILLING COEFFICIENT

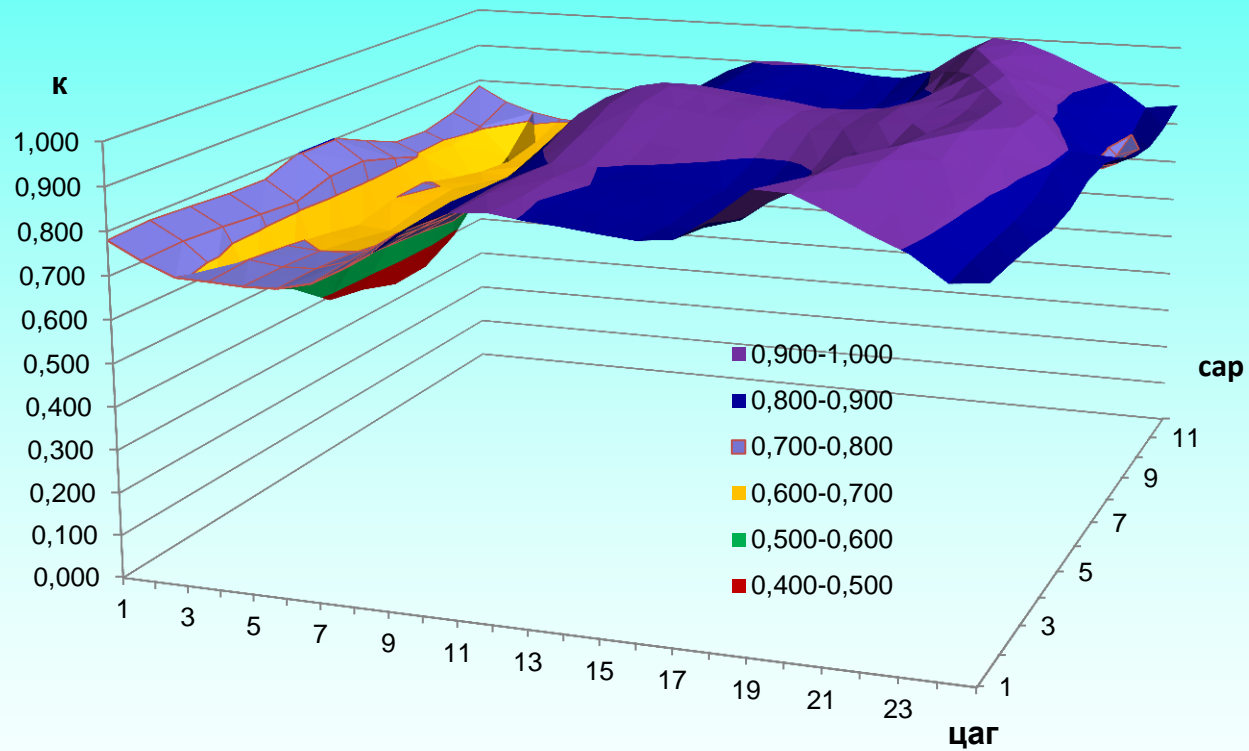
Indication	2010	2011	2012	2013
Supplied to market energy (distribution), mil.KWh	3 640,0	3 859,9	4 203,3	4 442,6
Filling coefficient, %	0,841	0,831	0,838	0,828
Total energy, mil.KWh	4 326,2	4 643,5	5 016,1	5 364,8
Saved energy, mil.KWh	686,2	783,6	812,8	922,2
Saved demand, yearly average, MW	78	89	93	105
Low load Filling coefficient, %	0,12	0,124	0,127	0,131
High load Filling coefficient, %	0,077	0,084	0,082	0,088



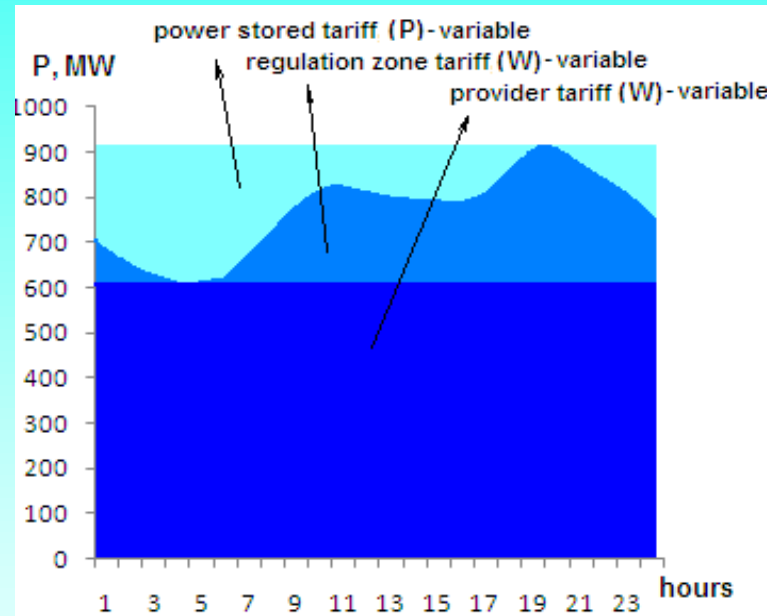
AVERAGE FILLING OF DAILY LOAD

Цар	1 cap	2 cap	3 cap	4 cap	5 cap	6 cap	7 cap	8 cap	9 cap	10 cap	11 cap	12 cap
1	0,780	0,786	0,780	0,772	0,770	0,803	0,803	0,763	0,725	0,720	0,740	0,784
2	0,741	0,744	0,738	0,729	0,721	0,747	0,751	0,723	0,692	0,689	0,705	0,743
3	0,710	0,683	0,600	0,553	0,483	0,466	0,437	0,440	0,484	0,566	0,629	0,719
4	0,707	0,714	0,706	0,693	0,676	0,699	0,705	0,683	0,664	0,655	0,673	0,704
5	0,703	0,704	0,700	0,687	0,669	0,687	0,696	0,676	0,653	0,652	0,670	0,699
6	0,706	0,707	0,701	0,689	0,670	0,688	0,696	0,673	0,656	0,655	0,673	0,704
7	0,723	0,731	0,723	0,716	0,706	0,721	0,731	0,703	0,697	0,689	0,702	0,732
8	0,765	0,781	0,771	0,764	0,765	0,784	0,789	0,764	0,766	0,748	0,753	0,773
9	0,813	0,832	0,819	0,816	0,835	0,866	0,875	0,855	0,826	0,805	0,808	0,823
10	0,872	0,883	0,878	0,875	0,905	0,944	0,953	0,928	0,886	0,859	0,860	0,870
11	0,903	0,906	0,908	0,903	0,936	0,976	0,986	0,964	0,909	0,881	0,885	0,902
12	0,908	0,906	0,912	0,904	0,937	0,983	0,991	0,965	0,906	0,879	0,883	0,904
13	0,898	0,893	0,900	0,893	0,924	0,973	0,980	0,955	0,894	0,863	0,871	0,899
14	0,891	0,883	0,891	0,886	0,915	0,964	0,968	0,946	0,881	0,856	0,863	0,890
15	0,882	0,874	0,883	0,877	0,906	0,954	0,960	0,938	0,880	0,850	0,850	0,881
16	0,875	0,865	0,873	0,868	0,891	0,938	0,948	0,925	0,868	0,844	0,850	0,878
17	0,884	0,869	0,874	0,870	0,893	0,940	0,947	0,927	0,869	0,850	0,869	0,903
18	0,935	0,891	0,891	0,883	0,908	0,951	0,955	0,936	0,889	0,883	0,935	0,959
19	1,000	0,959	0,933	0,916	0,939	0,971	0,975	0,961	0,933	0,969	1,000	1,000
20	0,997	1,000	1,000	0,958	0,956	0,974	0,976	0,971	0,996	1,000	0,984	0,993
21	0,964	0,978	1,000	1,000	0,989	0,978	0,980	1,000	1,000	0,959	0,944	0,965
22	0,926	0,941	0,955	0,971	1,000	1,000	1,000	0,979	0,932	0,906	0,904	0,929
23	0,893	0,904	0,913	0,924	0,952	0,982	0,981	0,919	0,866	0,855	0,866	0,894
24	0,839	0,846	0,847	0,848	0,857	0,891	0,895	0,837	0,784	0,781	0,800	0,839
	0,846	0,845	0,842	0,833	0,842	0,870	0,874	0,851	0,819	0,809	0,822	0,849

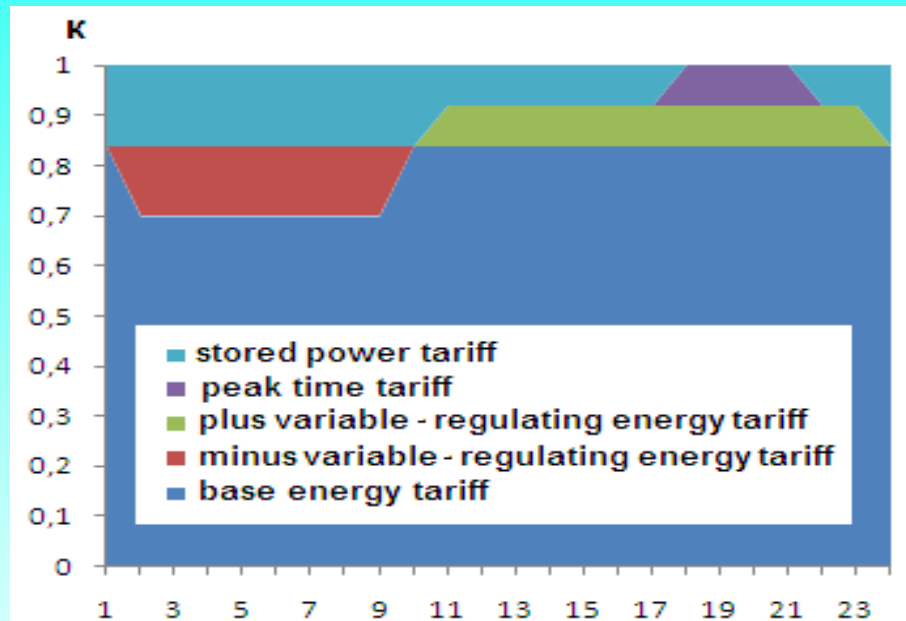
YEARLY LOAD CURVE (AVERAGE LOAD)



TARIFF REGULATION WITH DISPATCHING REGULATION



PRINCIPLE OF TARIFF FOR ESTIMATING UNIT ELELCTRICITY ENERGY



$$W = f(\text{var}) \Rightarrow W = W_1 \cdot \text{mapu}\phi + W_2 \cdot \text{mapu}\phi$$

$$W_1 = k^1 \cdot P^1 \cdot t^1 - k^2 \cdot P^2 \cdot t^2 + k^3 \cdot P^3 \cdot t^3 + k^4 \cdot P^4 \cdot t^4$$

$$W_2 = k^5 \cdot P^5 \cdot t^5$$

$$k = k^1 - k^2 + k^3 + k^4 + k^5 = 1$$

CONCLUSION

- Dispatching regulation is effecting mechanism to consist of unit cost. Thus, issues are very important of them closely coordinate with tariff policy. Although, energy is coming by variable cost, appearance is constant cost system by tariff regulation's multi version system. Otherwise, hourly average power is constant therefore, it is couldn't obtain system's main features and to come negatively result.
- According to the factors it is to effect daily load, determined criteria indication of load curve. It is clarified foundations for making tariff regulation.
- Certain partial of possibilities supplied energy is saved on relation of yearly generated energy and their filling coefficient. The saved energy was ready to required moment without cost.
- Accordingly, to improve now existing tariff system, to come consumption at night accordance with apply and follow power tariff, to economical support during the peak load. Also, it is step of smart application principles and can efficiently spent of ordered power.
- Smart tariff regulation should be consists constant or basic energy tariff, variable or regulating energy tariff, stored power tariff. Have a enough opportunities coordination tariff regulation with filling load coefficient. Supporting reliability and stability activities of energy sector, “smart tariff” and their following is expedient.



THANK YOU FOR YOUR ATTENTION!

