煤炭总量控制的水资源协同管控目标和措施

Synergetic Targets and Measures of Water Resources for Coal Consumption Cap in China

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1、煤炭消费对水资源系统的影响

Impacts of coal consumption on water resources

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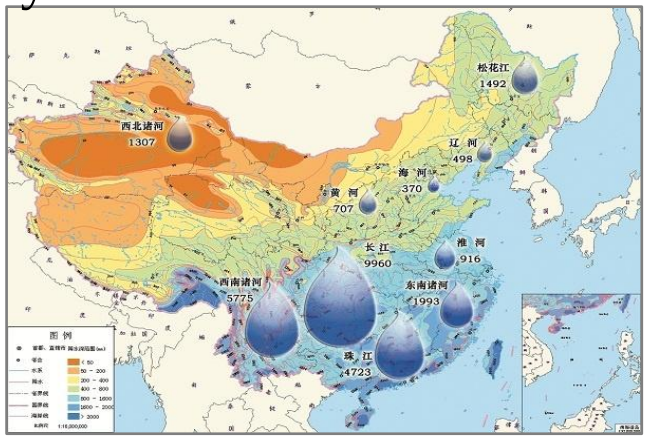
1.1 煤炭与水资源分布特点分析

Analysis on coal and water resources distribution in China

➢ 中国煤炭与水资源呈逆向分布。大型煤炭基地主要位于北部和西北部等水资源匮乏地区，特别是晋陕蒙宁甘等地区，原煤产量超过全国的60%，水资源仅占4.8%。Coal bases are mainly located in north and west regions of China where water resources are deficient and socio-economy are relatively undeveloped, especially for Shanxi, Shaanxi, Inner Mongolia, Ningxia and Gansu, with over 60% coal production and only 4.8% water resources of the whole country.

“十二五”规划的14个大型煤炭基地
Distribution of 14 coal bases

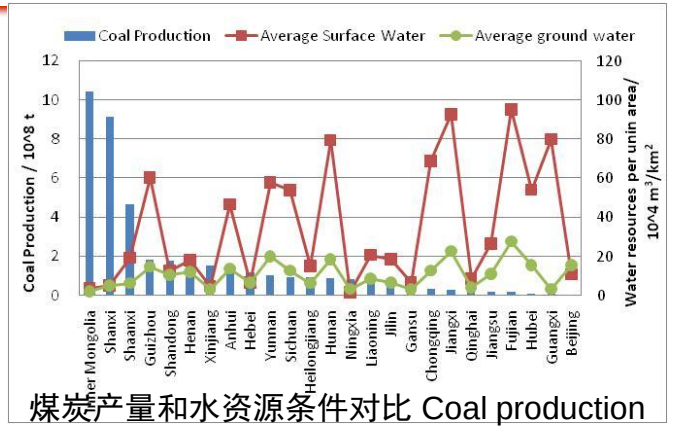


全国一级区水资源量分布
Distribution of water resources

1.1 煤炭与水资源分布特点分析

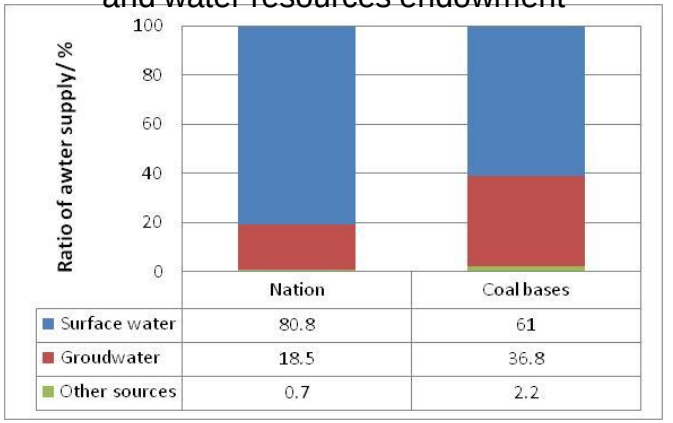
Analysis on coal and water resources distribution in China

- 全国14个大型煤炭基地，除云贵基地、蒙东基地水资源相对丰富外，其余基地都存在不同程度的缺水。区域水资源供需矛盾较为突出，煤炭开采及转化利用受到区域水资源条件的硬约束。Due to **inverse distribution of coal resources and water resources** in China, the development of coal mining and utilization faces constraints by local water resources, expect Yun-gui base and East Inner Mongolia base.



煤炭产量和水资源条件对比 Coal production and water resources endowment

- 煤炭基地的地下水供水比例较全国高一倍，达到36.8%。山东、内蒙古、山西部分地区，地下水源占区域供水量的70%以上。In terms of water supply, surface water provides 62.0% water use for 14 coal bases in 2012, while groundwater 36.8% and other water 2.2%. It's worth noting that groundwater makes up over 70% of total water supply in some places of Shandong, Inner Mongolia and Shanxi.



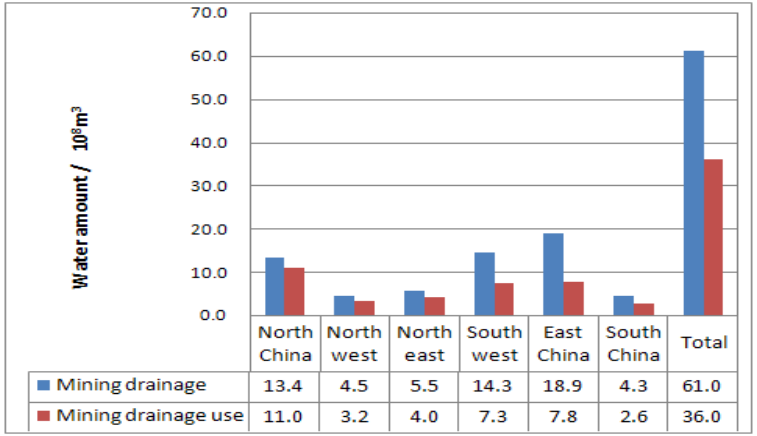
	Nation	Coal bases
Surface water	80.8	61
Groudwater	18.5	36.8
Other sources	0.7	2.2

煤炭基地和全国供水结构 Water supply structure

1.2 煤炭生产及转化利用对水资源的影响 -- 煤炭开采造成水循环改变和地下水流失

Evaluation on impacts of coal mining and utilization on water resources -- Coal mining causes water cycle change and groundwater loss

- 富煤地区的地下水资源匮乏（特别是在内蒙古、山西等地）The coal-rich places are usually water-deficient, especially in Inner Mongolia and Shanxi.
- 煤炭开采直接影响了地下水含水层结构，造成区域地下水资源流失，影响了地表水入渗及产流过程，废污水排放破坏了区域水环境。Coal mining processes destroy aquifer structure which causes groundwater loss and change of surface water infiltration and runoff, while corresponding waste drainage pollutes regional environment.
- 2010年全国矿坑涌水总量达到61亿m^3，矿井水利用率尚不足60%。在局部地区，矿坑涌水量高达地下水利用量的77.6%。The mining drainage in China is as high as 6.1 billion m^3 in 2010 of which no more than 60% are collected and used. The mining drainage accounts for 77.6% of groundwater utilization in some regions.



	North China	North west	North east	South west	East China	South China	Total
Mining drainage	13.4	4.5	5.5	14.3	18.9	4.3	61.0
Mining drainage use	11.0	3.2	4.0	7.3	7.8	2.6	36.0

矿井涌水量及利用量

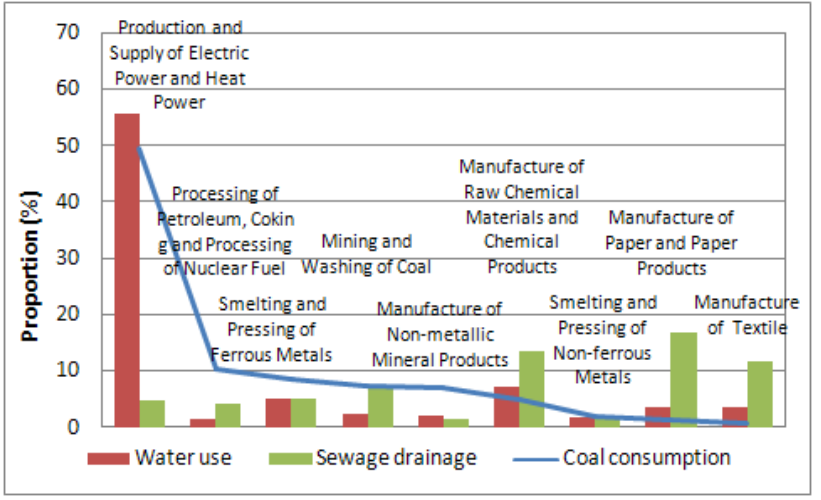
National and regional mining drainage

1.2 煤炭生产及转化利用对水资源的影响 --煤炭转化利用加剧了水资源供需矛盾

Evaluation on impacts of coal mining and utilization on water resources -- Coal utilization aggravates water supply and demand contradiction

- 煤炭消费下游产业链十分丰富，局部地区煤炭相关产业的快速发展超出了区域水资源承载能力，加剧了缺水地区的水资源供需矛盾。The downstream businesses of coal are very plentiful which relate closely with water resources. Rapid development of coal related industry in some regions go beyond local water resources carrying capacity which may aggravate water resources contradiction.

- 从全国来看，在煤炭生产和转化利用中占较大比例的行业，其在水消费中也占有重要地位，煤炭消费下游产业链对区域水资源和水环境的影响巨大，特别是火力发电、煤化工、钢铁等行业。Nationally, those industries ranking high in coal consumption also play important roles in water consumption, indicating that coal downstream businesses greatly influence regional water resources and environment, , especially for industries of thermal power, coal chemical industry and steel.



煤炭相关产业的用水和污水排放

Coal consumption, water use and sewage drainage of coal related industries

2、“十二五”煤炭消费的水资源“数量-质量-效率”指标

‘Quantity-Quality-Efficiency’ of water resources in coal consumption during the twelfth five-year plan of China

2.1 煤炭主要相关行业的取用水量

Evaluation on water use of coal related industries

2.2 煤炭主要相关行业的用水效率

Evaluation on water efficiency of coal related industries

2.3 煤炭主要相关行业的污水排放

Evaluation on sewage drainage of coal related industries

2.1 煤炭主要相关行业的取用水量

Evaluation on water use of coal related industries

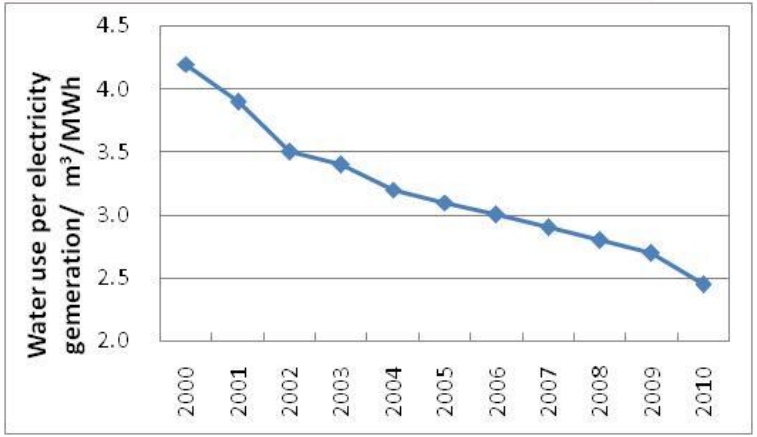
➢ 据统计调查以及推算的数据，煤炭相关行业用水总量达到了677.32亿m^3，占到全国工业用水总量的46.80%，特别是火电、钢铁、煤化工等，属于高耗水、高排放行业，对工业用水总量的影响较大。According to the survey and calculated data, total water use of coal related industries is as high as 67.7 billion m^3, accounting for 46.8% of the national total industrial water, especially for high water consumption and high emission industries, such as thermal power, steel and coal chemical industry.

相关行业 Industries	2010年用水总量（亿m^3） Water use in 2010(10^8m^3)	占工业用水总量之比（%） Proportion of the total of industrial water(%)
煤炭开采洗选 Coal mining	29.13	2.01
钢铁 Steel	27.90	1.93
水泥 Cement	11.22	0.78
建筑 Construction	20.28	1.40
火电 Thermal Power	497.20	34.35
焦炭 Coke	9.69	0.67
现代煤化工 Modern coal chemical	1.05	0.07
其他 others	80.85	5.59
小计 Total	**677.32**	**46.80**

2.2 煤炭主要相关行业的用水效率 –火电

Evaluation on water efficiency of coal related industries –Thermal power

- 我国火电行业平均单位发电量耗水指标呈逐步下降趋势，2010年达到2.45 m^3/ MW•h，而国际上发达国家先进水平相比仍有一定的差距。The water per unit of electricity generation of thermal power industry gradually fell to 2.45m^3/ MW•h in 2010, still higher than that of developed countries.
- 2012年我国火电厂单机容量600MW级及以上机组耗水指标抽样调查，部分地区已达到国际先进水平。According to sampling survey on water consumption of units above 600MW in thermal power plants in 2012, indicators of water consumption in some regions have reached the international advanced level.



火电行业耗水指标变化 Water use of thermal power

分类条件 Items	综合耗水率 Water consumption（t/MWh）	
	最优值 Best	平均值 Average
水冷机组 water chilling unit:闭式循环closed cycle	0.23	1.83
水冷机组 water chilling unit:开式循环open cycle ）	0.02	0.29
空冷机组air cooling unit	0.18	0.31

2012年火电机组耗水指标调查 Survey in 2012

2.2 煤炭主要相关行业的用水效率 –钢铁
Evaluation on water efficiency of coal related industries –Steel

➢ 近年来，通过技术创新和管理创新，我国钢铁企业的吨钢耗新水量呈下降趋势，而工业用水重复利用率逐年升高，钢铁行业的整体用水水平得到了持续提高。On basis of innovation on technology and management, water use in the steel industry has been promoted with water consumption per unit of steel production gradually decreasing and industrial water recycling rate increasing year by year.

➢ 不同钢铁企业之间的工序水耗和耗新水等指标的差距较大。 2014年，国内部分大型钢铁企业吨钢耗新水低于2 m^3/t，已经接近或达到世界先进水平。Water use level in some of the large steel enterprises have been close to or reached the world advanced level.

年份 Year	吨钢耗新水量Fresh water consumption per unit of steel production （m^3/t）	重复利用率 Water recycling rate （%）
2006	7.3	95.4
2007	6.0	96.3
2008	5.4	96.6
2009	4.9	97.0
2010	4.1	97.3
2011	3.76	97.4
2012	3.61	97.5
2013	3.50	97.6
2014	3.33	97.7

2.3 煤炭主要相关行业的污水排放
Evaluation on sewage drainage of coal related industries

➢ 2012年全国重点企业工业废污水排放总量为203亿t，其中与煤炭消费关系密切的行业，如化学原料及化学制品制造业，煤炭开采和洗选业，黑色金属冶炼及压延加工业，电力、热力的生产和供应业，石油加工、炼焦及核燃料加工业等，位于分行业废污水排放量的前列。Total sewage drainage of key enterprises in China was 20.3 billion tons, and coal related industries played important roles.

行业 Industries	工业废水排放总量 Sewage drainage(万t)	排序 Rank
总计 Total	2033627	
造纸及纸制品业Manufacture of Paper and Paper Products	342717	1
化学原料及化学制品制造业Manufacture of Raw Chemical Materials and Chemical Products	274344	2
纺织业Manufacture of Textile	237252	3
农副食品加工业	156566	4
煤炭开采和洗选业Mining and Washing of Coal	142220	5
黑色金属冶炼及压延加工业Smelting and Pressing of Ferrous Metals	106148	6
电力、热力生产和供应业Production and Supply of Electric Power and Heat Power	95575	7
石油加工、炼焦及核燃料加工业Processing of Petroleum, Coking and Processing of Nuclear Fuel	87474	8

3、“十三五”期间水资源约束及煤控目标

Development of coal consumption under the constraints of water resources during the thirteenth five-year plan of China

3.1 “十三五”水资源相关政策约束

Policies on water resources in the thirteenth five-year plan of China

3.2 煤炭相关行业水资源红线

Evaluation on water red line of coal related industries

3.3 重点区域水资源红线约束及煤控目标

Coal consumption control in key area based on red line of water resources

3.1 “十三五”水资源相关政策约束
Policies on water resources in the thirteenth five-year plan of China

□最严格水资源管理 The most stringent water resources management

➢ 2012年，国务院发布《关于实行最严格水资源管理制度的意见》，规定了未来各省区的用水总量、万元工业增加值用水量、农田灌溉水有效利用系数和水功能区达标率等控制指标。到2020年，全国用水总量力争控制在6700亿立方米以内；万元工业增加值用水量降低到65立方米以下（以2000年不变价计），农田灌溉水有效利用系数提高到0.55以上；重要江河湖泊水功能区水质达标率提高到80%以上，城镇供水水源地水质全面达标。In 2012, the State Council issued indicators for each province in the future, including the total water control, water consumption per industrial added value, effective utilization coefficient of irrigation water and water function zones compliance rate, in which water use indicators in 2020 are defined.

➢ 这对煤炭开采、转化、利用等相关高耗水高污染行业和相关区域的取水、用水和排水全过程提出了要求。The whole process of water use and drainage in all industries and key regions, including coal mining and utilization, must meet specified requirements.

3.1 “十三五”水资源相关政策约束
Policies on water resources in the thirteenth five-year plan of China

□水污染防治行动计划（水十条） Water pollution prevention action plan

➢ 2015年，国务院出台《水污染防治行动计划》，提出实行最严格环保制度。In 2015, the State Council issued the “Water pollution prevention action plan”, bringing out the most stringent environmental protection system.

➢ 其中要求：“到2020年，全国水环境质量得到阶段性改善”，“长江、黄河、珠江、松花江、淮河、海河、辽河等七大重点流域水质优良(达到或优于Ⅲ类)比例总体达到70%以上，全国地下水质量极差的比例控制在15%左右。”同时提出专项整治造纸、化工等高污染行业，强化工业集聚区污染治理。By 2020, the national water environment quality are to be. High-polluting industries and regions are facing special treatment, including papermaking, chemicals, and the industrial agglomeration area.

➢ 对煤炭相关高污染行业的废污水处理以及煤炭基地的水资源供用耗排提出了要求。These requirements also apply to wastewater treatment of coal related industries, as well as water supply and drainage in coal bases.

3.1 “十三五”水资源相关政策约束
Policies on water resources in the thirteenth five-year plan of China

□地下水开发利用的约束 Conservation of groundwater

➢ 2012年，《全国地面沉降防治规划(2011-2020)》通过国务院审批，由国土资源部和水利部印发。In 2012, "National Land Subsidence Prevention Plan (2011-2020)" was issued by the Ministry of Land and Sources and Ministry of Water Resources.

➢ 其中指出，“目前地面沉降比较严重的集中在华北平原、长三角和汾渭盆地这三个区域。”其中要求：“全面实行地下水取用水总量控制和水位控制。要严格控制地下水开采，城市建设、矿山开采等建设项目施工和生产需要取用或疏干抽排地下水的，应严格进行水资源论证。”Three key regions are the North China Plain, the Yangtze River Delta and the Fen-Wei basin. Groundwater quantity and level control are fully implemented, and groundwater drainage must be planned on basis of water resources demonstration.

➢ 对限制地下水开发利用、控制区域煤炭开采、合理规划利用矿井涌水提出了要求。Reasonable planning and use of drainage during coal mining and coal production control in key regions are required.

3.2 煤炭相关行业水资源红线 --现状及指标要求
Evaluation on water red line of coal related industries

- 从全国来看，2014年用水总量为6220.0亿m^3，较2010年增长了3.3%。2015年和2020年用水总量红线指标6350亿m^3和6700亿m^3。Nationally, in 2014 the total amount of water use is 622 billion m^3, increase 3.3% to 2010, while the red lines in 2015 and 2020 are 635 billion m^3 and 670 billion m^3.

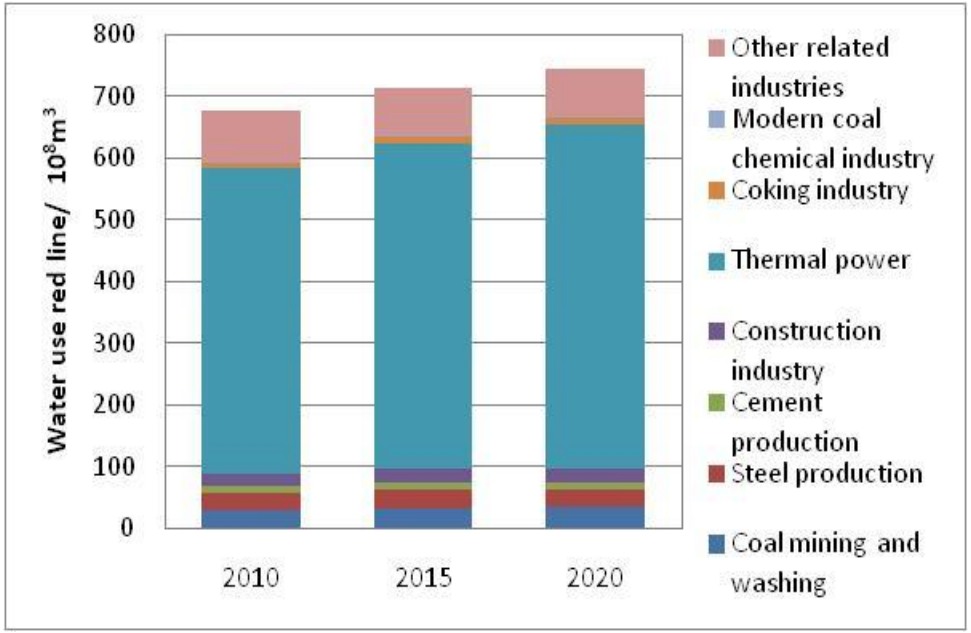
- 2014年万元工业增加值用水量为64.0m^3，接近2015年万元工业增加值用水量较2010年降低30%的目标；2020年万元工业增加值用水量红线指标为较2013年降低30%。2013年重要江河湖泊水功能区水质达标率为63.0%，超过了2015年60%的目标；I-III类水质河长占68.6%，较2010年提高了7.2%。The indicator of water efficiency in 2020 is required to be 30% lower than 2013.Water function zones compliance rate is required to be at least 60% in 2015 and 80% in 2020.

红线指标 Redline indicator	2010年	现状Current	2015年	2020年
用水总量Total water use（亿m^3）	6022.0	6220.0(2014年)	6350.0	6700.0
万元工业增加值用水量Water efficienty（m^3/万元）	90.0	64.0(2014年)	63.0	47.6
水功能区水质达标率Water function zones （%）	-	63.0(2013年)	60.0	80.0

3.2 煤炭相关行业水资源红线

Evaluation on water red line of coal related industries

➢ 基于全国“三条红线”指标要求及现状情况，结合工业用水量红线，考虑不同行业节水潜力以及发展需求，在节水技术应用和行业合理布局的条件下，综合确定了煤炭开采洗选和转化利用各部门在“十三五”期间的用水总量约束。National water use red line of coal related industries is calculated on basis of national total water use red line and water use efficiency released by the State Council combined with the water-saving potential and development needs of coal related industries.



煤炭相关行业用水总量控制指标

Water use redline of coal related industries

3.2 煤炭相关行业水资源红线
Evaluation on water red line of coal related industries

- 全国用水总量控制红线指标在“十三五”期间仍将增大，反映出经济社会发展对于水资源的需求在不断增加。In terms of the national total water use red line, water demands in 2015 and 2020 show a trend of steady growth indicating increasing need of social and economic development on water resources.

- 煤炭消费各部门用水总量控制红线近期内呈现出逐步升高趋势，预计于2020年达到峰值746.98亿m^3，较2010年现状用水量增加了69.66亿m^3，增长幅度为10.3%，低于同期全国用水总量红线增幅11.3%。In terms of national water use red line of coal related industries, the peak of water use will be 74.7 billion m^3 in 2020, rising by 10.3% than that of 2010, slightly lower than corresponding growth rate of national total water use 11.3%.

- 火电在煤炭消费用水总量中占到了70%以上，是煤炭消费的主要用水部门。The water use of thermal power makes up more than 70% of total water use of coal related industries.

3.2 煤炭相关行业水资源红线 –情景分析

Evaluation on water red line of coal related industries

➢考虑经济、社会、资源、环境等多方面的因素，确定了煤炭消费总量控制的基准情景和煤控情景。With consideration of socio-economic development and resources and environment carrying capacity, base scene and coal control scene are brought out.

➢综合考虑不同的煤炭消费总量控制情景和煤炭相关部门用水模式，按照是否控煤以及是否节水，设置了四个方案分析“十三五”期间煤炭相关行业的用水变化，并与水资源红线进行对比。In accordance with different coal control scenes and water saving modes, four schemes are considered.

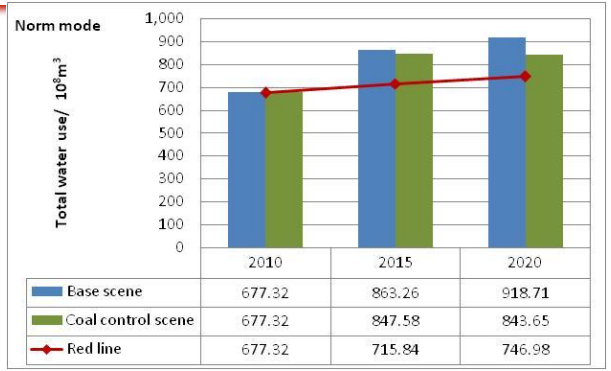
3.2 煤炭相关行业水资源红线 –情景分析

Evaluation on water red line of coal related industries

➢从煤炭消费全过程用水总量来看，常规模式下各水平年煤炭消费全过程用水总量高于相应情景下节水模式用水总量，体现了节水技术对用水总量增长的影响。The total water use of coal consumption under norm mode is much bigger than that of water saving mode, indicating that applications of water saving technology could greatly restrain total water use growth with increasing coal consumption .

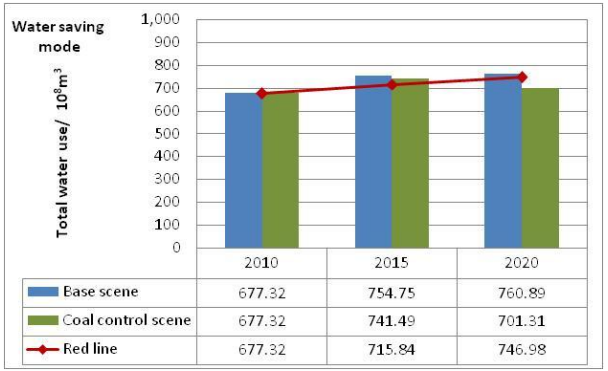
➢煤控情景各水平年煤炭消费全过程用水总量均低于基准情景，体现了煤炭消费总量控制对用水总量增长的影响。The total water use of coal consumption under coal control scene is less than that of base scene, and coal consumption control makes positive contribution to water use control.

➢煤炭总量控制和节水技术应用对煤炭消费相关行业用水总量控制缺一不可。Both of coal consumption control and water saving technology are indispensable for coordination and sustainable development of coal industries and water resources under the most strict water resources management policy.



常规模式用水总量

Water use under norm mode



节水模式用水总量

Water use under water saving mode

3.3 重点区域水资源红线约束及煤控目标

Coal consumption control in key area based on red line of water resources

- 考虑煤炭基地对国内煤炭生产和转化利用的重要影响，以及煤炭和水资源相关数据的可获取性，选取全国14个煤炭基地作为研究对象，分析测算各煤炭基地的煤炭消费全过程用水量红线指标。Considering the great influence of coal bases on national coal production and utilization, as well as data availability of coal and water resources, 14 coal bases are selected to calculate water use red line of coal related industries.
- 考虑煤炭基地水资源保护和可持续利用，以用水总量控制和地下水保护这两个条件作为约束，测算水资源红线约束下的煤炭开采和利用规模。To realize water resources conservation and sustainable utilization, restraints on total water use and groundwater damage are considered to evaluate reasonable coal production and utilization based on red line of water resources.
  - ✓ 设定煤炭开采洗选用水量、煤炭转化利用用水量控制在工业总用水量的20%以内（规划加大开采区域放宽上限至40%）Total water use of coal production or utilization are set to be less than 20% of industrial water use while key regions let out to 40%.
  - ✓ 设定矿井涌水量控制在区域地下水资源量的20%以内。Mining drainage of coal production is set to be less than 20% of regional groundwater.

3.3 重点区域水资源红线约束及煤控目标

Coal consumption control in key area based on red line of water resources

➢从全国来看，考虑资源及环境保护，煤炭在一次能源结构中的比重应逐步下降。
From a national perspective, coal in primary energy structure should gradually decline

➢从局部来看，应限制在地质灾害高易发区、重要地下水资源补给区和生态环境脆弱区开采煤炭，禁止在自然保护区、重要水源保护区和地质灾害危险区等禁采区内开采煤炭。Coal production should be limited in the high geological disaster-prone , important groundwater recharge and ecological fragile areas, and prohibited in nature reserves, important water source protection areas and geological hazard zones.

Coal bases	现状产能 Current capacity（亿t）	推荐产能 Rational capacity（亿t）	用水总量约束下的压采区域 Water use restraint	地下水保护约束的压采区域 Groundwater restraint
神东	6.63	4.14	鄂尔多斯	鄂尔多斯，乌海
蒙东	3.54	3.54		
宁东	0.40	0.40		
黄陇	0.30	0.30		
陕北	4.60	3.79	榆林	
晋北	3.60	2.89	朔州	朔州
晋中	2.56	2.27	吕梁	
晋东	3.44	3.44		
新疆	1.12	1.12		
冀中	1.82	1.50		唐山，邯郸
河南	1.67	1.51		郑州，鹤壁
两淮	1.39	0.67		淮北，淮南
鲁西	1.04	1.04		
云贵	4.19	4.19		
合计	**36.30**	**30.80**		

3.3 重点区域水资源红线约束及煤控目标

Coal consumption control in key area based on red line of water resources

- 结果表明，煤炭基地中建议控制煤炭开采规模的地市主要有：内蒙古鄂尔多斯，陕西榆林，山西朔州和吕梁。2015年14个煤炭基地开采总量建议控制在30.8亿t以内。According to the calculation, several cities need to cut down coal production with water resources constraint, including Erdos of Inner Mongolia, Yunlin of Shaanxi, Shuozhou and Lvliang of Shanxi. The total coal production of 14 coal bases in 2015 should be controlled within 3.08 billion tons.
- 煤炭基地中建议控制火电用水的地市有：河南平顶山，安徽淮南。The cities of Pingdingshan of Henan and Huainan of Anhui need to control water use in thermal power industry.
- 煤炭基地中建议控制现代煤化工用水的地市有：内蒙古鄂尔多斯，宁夏银川，陕西榆林，新疆昌吉。 Several cities need to control water use of modern coal chemistry development, including Erdos of Inner Mongolia, Yinchuan of Ningxia, Yunlin of Shaaxi, and Changji of Xinjiang.

4、煤炭总量控制的水资源协同管控体系

Proposals on synergetic control system of water resources for coal cap

4.1 “点-线-面”结合的水资源协同管控体系

‘Point - Line – Area’ multistage synergistic control system of water resources in coal consumption

4.2 保障制度和具体措施

Proposals of solutions and countermeasures

4.1 “点-线-面”结合的水资源协同管控体系

‘Point - Line – Area’ multistage synergistic control system of water resources

点Point

- 建设项目水资源论证 Assessment of water-draw and utilization in construction projects
- 建设项目环境影响评价 Environmental impact assessment of construction projects

线Line

- 取水Water-draw：源头管理Source management（总量控制Total quantity control）
- 用水Water use：过程管理Process management（效率控制Water efficiency control）
- 排水Drainage：末端管理Terminal management（限制纳污Pollution restriction）

面Area

- 规划水资源论证 Assessment of water-draw and utilization in regional and industrial planning
- 规划环境影响评价 Environmental impact assessment of regional and industrial planning

4.1 “点-线-面”结合的水资源协同管控体系

‘Point - Line – Area’ multistage synergistic control system of water resources

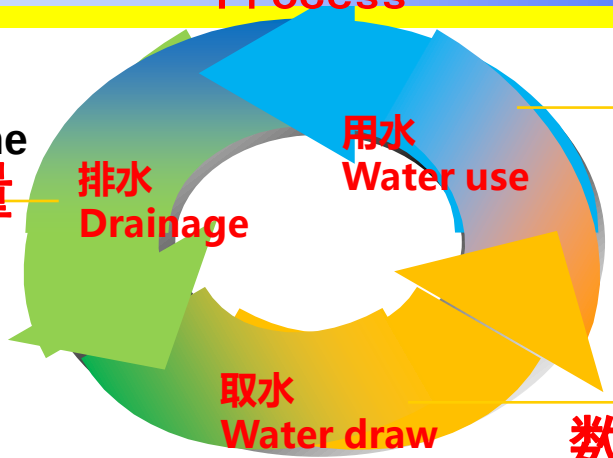
数量Quantity　效率Efficiency　质量Quality

总量控制　效率控制　限制纳污

源头管理 Source　过程管理 Process　末端管理 Terminal

水功能区限制纳污红线
pollution drainage red line
控制排污总量

质量



效率

用水效率控制红线 water use efficiency red line
遏制用水浪费

数量

开发利用控制红线
total water use red line
控制开发总量

4.2 保障制度和具体措施
Proposals of solutions and countermeasures

国家和区域配套的政策规划

Holistic national and regional policies and planning

宏观和微观结合的制度体系

Macro and micro institutional system

协调配合、权责统一的管理体制

Coordination and cooperation management

切实可行、约束有力的监督措施

Feasible and effective supervision measures

（1）国家和区域配套的政策规划
Holistic national and regional policies and planning

- 从国家层面来看，在“十三五”国民经济和社会发展综合规划以及专项规划的研究和制定中，应综合考虑经济社会发展转型、能源结构调整、水资源水环境水生态修复等因素，明确煤炭消费总量控制目标、水资源开发利用和节约保护目标，提出分期、分区、分行业的指标要求，并制定“十三五”期间的相关专项规划，如矿井水利用规划、煤矿采空区综合治理规划、煤炭基地水资源保护规划、煤炭消费相关行业的节水规划等；From the national perspective, specific aims of coal consumption control, water resources conservation and development should be carried out in the 13th five-year plan, as well as detailed requirements in specialized planning.

- 从地方层面来看，应与国家规划相衔接，在国家煤炭总量控制和水资源保护规划的基础上，充分考虑当地的水资源、水环境承载能力，合理确定煤炭相关产业的发展布局、结构和规模，明确区域煤炭开发和转化利用相关规划，并制定切实可行的水资源保护和水污染消减方案。 From the regional perspective, reasonable scale and distribution of coal related industries should be settled with consideration of water resources capacity and corresponding water saving and pollution treatment schemes.

（2）宏观和微观结合的制度体系
Macro and micro institutional system

- 在区域层面上，区域的经济社会发展规划应坚持“以水定城、以水定地、以水定人、以水定产”的原则，将规划水资源论证和规划环境影响评价工作作为规划与审批重大建设项目和产业基地的前置条件。特别是14个大型煤炭基地，必须以区域水资源承载能力为刚性约束，明确区域水资源水环境准入条件。On the regional level, planning of socio-economic development should take water resources capacity as solid restraint with preconditions of assessment of water-draw and utilization in regional and industrial planning, and environmental impact assessment of regional and industrial planning. Especially for 14 coal bases, water resources and eco-environment access conditions should be confirmed.

- 在项目层面上，对煤矿开采以及煤炭下游产业等建设项目进行严格的建设项目水资源论证和建设项目环境影响评价，并将其作为建设项目审批的必要条件。煤炭相关建设项目利用水资源，必须遵循合理开发、节约使用、有效保护的原则。On the project level, assessment of water-draw and utilization in construction projects and environmental impact assessment of construction projects should be both verified before its construction.

（3）协调配合、权责统一的管理体制
Coordination and cooperation management

- 煤炭和水资源管理涉及能源、国土、水利、环保等多个部门，要实现煤炭消费总量控制和水资源节约保护，必须完善部门间的协作机制。各级政府、各部门之间要加强协调配合、定期会商，实施联合监测、联合执法、应急联动、信息共享。Coal and water resources management involves departments of energy, land, water conservancy, environmental protection, etc., to achieve the coal consumption control and water conservation protection, we must improve inter-sectoral coordination mechanisms with coordination among the various departments, regular meetings, implementing joint monitoring, joint law enforcement, emergency response, sharing of information.

- 建立权责统一的目标考核机制，国务院与各省(区、市)人民政府签订煤炭总量控制以及最严格水资源管理目标责任书，确保各项任务全面完成。强化公众参与，依法公开水资源和水环境相关信息，加强社会监督。Assessment mechanism based on coordination of power and responsibility should be established to ensure that the task completed. Strengthen public participation and social supervision.

（4）切实可行、约束有力的监督措施
Feasible and effective supervision measures

- 推进矿井水综合利用，到2020年，矿井水实现100%利用。Promote the comprehensive utilization of mine water with 100% utilization by 2020.
- 提高用水水平，到2020年，电力、钢铁、化工等高耗水行业应达到先进定额标准。Improve water use levels, by 2020, water consumption quotas of electric power, iron and steel, chemical industry, should reach the advanced standard.
- 采用政策调控和市场调节“两手发力”，加强煤炭相关产业节水技术的创新研究和节水工艺的推广应用。Strengthen the promotion and application of coal-related industrial water-saving technological innovation by policy control and market regulation .
- 推动水权转换的实施，满足煤炭相关产业发展的合理用水需求，在充分论证其生态环境影响的前提下，实现水资源优化配置。Promote implementation of water right transfer to meet the reasonable needs of the development of coal-related industries.
- 完善水资源水环境监测网络，提升煤炭相关行业取用排水全过程的监测能力。Improve water resources and environment monitoring network and monitoring capacity of the whole water use process.

谢谢

Thanks for
your attention