

学校编号: 10384

分类号_____密级_____

学号: 200431038

UDC_____

厦 门 大 学

硕 士 学 位 论 文

煤炭分布式智能化质量管理系统的研究
与实现

Research and Implementation of Distributed Intelligence
Quality Management for Coal Industry

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专 业 名 称: 系 统 工 程

论文提交日期: 2007 年 6 月

论文答辩日期: 2007 年 月

学位授予日期: 2007 年 月

答辩委员会主席: _____

评 阅 人: _____

2007 年 6 月

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摘 要

世界经济发展进程加快，信息化、全球化、多极化发展的大趋势十分明显，而信息化被称为推动现代经济增长的发动机和现代社会发展的均衡器。信息化与全球化，推动着全球产业分工深化和经济结构调整，改变着世界市场和世界经济竞争格局，所以全球信息化是世界经济发展的必然趋势。煤炭作为我国基础行业，其有效供给保证了国家经济和社会发展的需求，也为我国总体经济增长做出了巨大贡献。2006 年我国煤炭产量达 23.25 亿吨，比上年增长 8.09%，煤炭消费量 23.00 亿吨，增长 9.26%，规模以上煤炭企业实现利润 677 亿元，同比增长 25.3%，而与此同时，我国煤炭行业信息化建设仍处于相对落后阶段，信息化投入力度仍然不足，要想使得我国煤炭行业更具有国际竞争力，就必须加快我国煤炭信息化建设步伐。

本论文以福建煤电股份有限公司为开发背景，介绍了煤炭分布式系统的设计，并详细介绍了煤炭分布式质量管理系统的设计和实现。该质量管理系统不仅能够自动读取计重数据，同时可根据公司给各矿点制定的质量标准来自动判断煤质等级，并让用户自定义汇总相关的统计报表。这套系统不但有效地缩短了统计人员的工作流程，同时也避免了手工的遗漏和错误，更为重要的是它使得企业上层部门真正做到了统一规划，统一领导。

最后本文还引入了与质量管理密切相关的动力配煤技术，并在传统线性加权法配煤基础上加以延伸，首先论证了配煤中成品煤的主要指标与各单煤指标存在线性相加的理论，进而建立新的优化配煤模型。该模型不仅兼容了传统的线性加权模型，而且将各单种煤单位运费也作为影响因子加入到目标函数中，同时为各单煤设定了权重参数，通过调整权重参数，节约优质煤并提高劣质煤的利用率，从而使得配煤结果更符合实际，更具有操作性。

关键字：质量管理；配煤；分布式

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ABSTRACT

As the rapid development of world economy, informatization, globalization, multipolarity as megatrend become more and more obvious. what's More, Informatization is called the engine to speed up modern world economy and the equalizer to coordinate social development. Informatization together with economy globalization, pushes global industry to divide deeply and economic structure to adjust, changes the world market and world economy competitive Structure, which makes global informatization become inevitable trend in the world economy development. The coal is a vital basic industry of Chinese economy, and also an important mark for China's national economy and society level and synthesis strength. In the year of 2006,the output of coal mine in China is about 2.325 billion ton, compared with the same period of last year increase by 8.09% and the consumption of coal is 2.3 billion ton, increase by 9.26% compared with the same period of last year, large-scale coal enterprises achieve profits of 67.7 billion Yuan, increase by 25.3% compared with the same period of last year. However, the informatization construction of coal industry in China is still in a low lever, Added with low investment. In summary, so long as we speed up the step of coal informatization in China, it will become more and more competitive in the world.

This thesis takes Fujian coal-power limited liability company as the develop background for coal industry, Firstly, it introduces the design of the distributed application system of coal industry, secondly, it explains how to design and implement the quality manage system, which is a subsystem of the distributed application system of coal industry. The quality manage system can not only acquire measure data in measure department automatically, but decide which grade of quality the product is according to documents of enterprise. Meanwhile, with its user-defined structure, The system also have strong report function. It is not only cut down the labor of statistician but prevent errors by handwork. what's more, it makes unified planning transformed into reality.

Finally, this thesis draws into technology of coal blending which have close relation with quality manage of coal industry. To expend the traditional linear weighted model for coal blending, the thesis first prove in theory the index marks of finished product of coal blending have linear correlation with single coals which take part in coal blending, and furthermore, it builds a new model for coal blending which takes fare as influent factor into objective function and set weight coefficient for every single coal. As result, we can save excellent quality coal and make best use of faulty coal by means of adjust the parameter of weight coefficient. which makes coal blending become more practical.

Key words: Quality manage; Coal blending; Distributed

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