



सत्यमेव जयते

Perform Achieve Trade (PAT) Mechanism 履行、实现和交易（PAT）机制



**Workshop on Market Mechanisms to Support
China's Energy and Climate Goals
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支持中国能源和气候目标的市场机制研讨会

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Outline概述



- Perform Achieve Trade (PAT) Mechanism
- Market Design
- Institutional Design
- Conclusion
- PAT机制
- 市场设计
- 机构设计
- 结论



PAT Mechanism - Overall Structure



Set Targets

- Setting targets on the basis of current specific energy consumption
- Set compliance period
- Takes into account Location, Vintage, Technology, raw materials, product mix etc.



Monitoring & verification of targets by Designated Energy Auditors

- Check if Designated Consumer has achieved targets
- Overachievement: issuance of Energy Saving Certificates
- Underachievement: Obligations to buy Energy Saving Certificates or pay penalty



Trading of Energy Saving Certificates

- Participation by Designated Consumers on platform provided by Power Exchanges
- Symmetrical flow of information

Market Based Mechanism

Reward
over -
achiever

Penalize
under -
performer



PAT机制——总体结构



设定目标



- 根据目前特定的能源消耗，设定目标
- 设定合规期
- 将位置、历史、技术、原材料和产品种类考虑在内

通过指定的能源审计师监督&认证目标



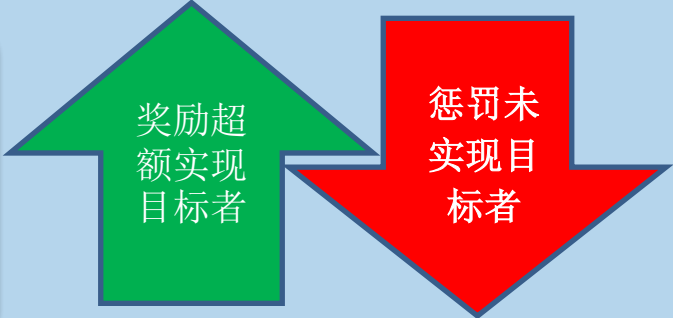
- 检查指定消费者是否已经实现
- 实现目标者：颁发节能证书
- 未实现目标者：购买节能证书或缴纳罚款义务

节能证书交易



- 指定消费者参加由电力交易中心提供的平台
- 信息的对称流动

以市场为基础的机制





PAT Mechanism - Main Components

PAT机制——主要构成部分



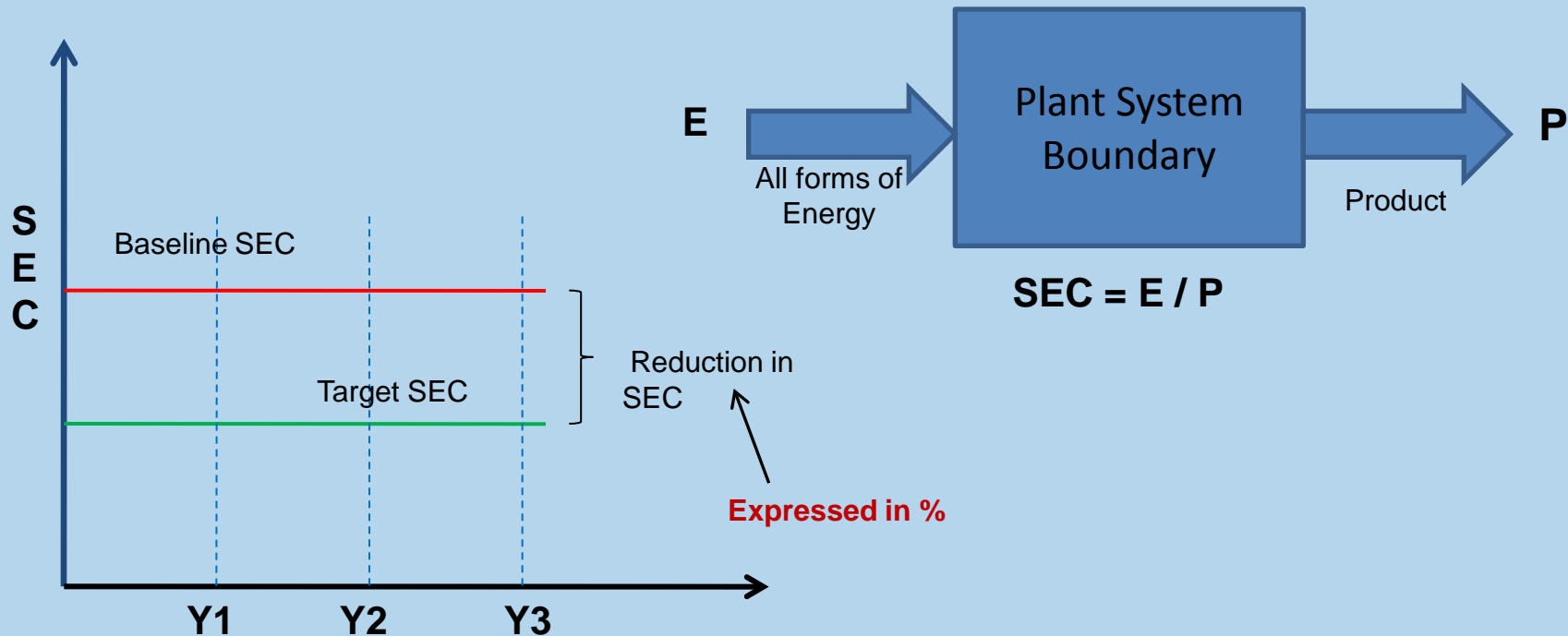
- Administrator
 - Set target and compliance period
- Designated Consumers
 - 8 sectors (463 units) Power, Steel, Cement, Fertilizer, Pulp & Paper, Textile, Aluminium, Chlor-alkali (First PAT Cycle)
- Auditing Agencies
 - Independent
 - Monitor, verify and certify
- Market Place
 - Transaction of energy efficiency instrument
- 管理者
 - 设定目标和合规期
- 指定消费者
 - 8个领域（463个部门）电力、钢铁、水泥、化肥、纸浆、纺织、铝业、氯-碱（第一个PAT循环）
- 审计部门
 - 独立的
 - 监督、检查和认证
- 市场
 - 能效工具的交易



Target under PAT



Target is defined as the % reduction of 'Specific Energy Consumption (SEC)' from Baseline value.

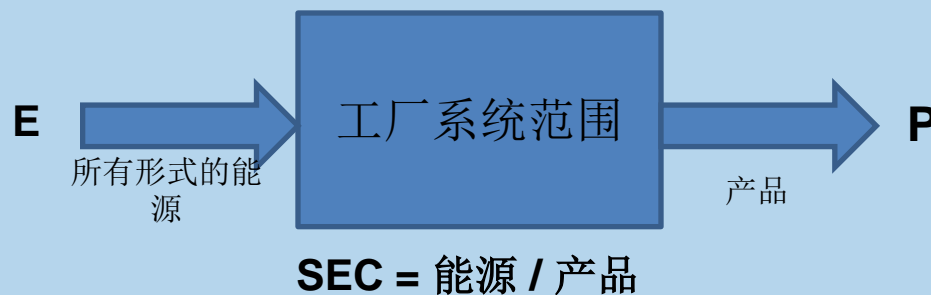
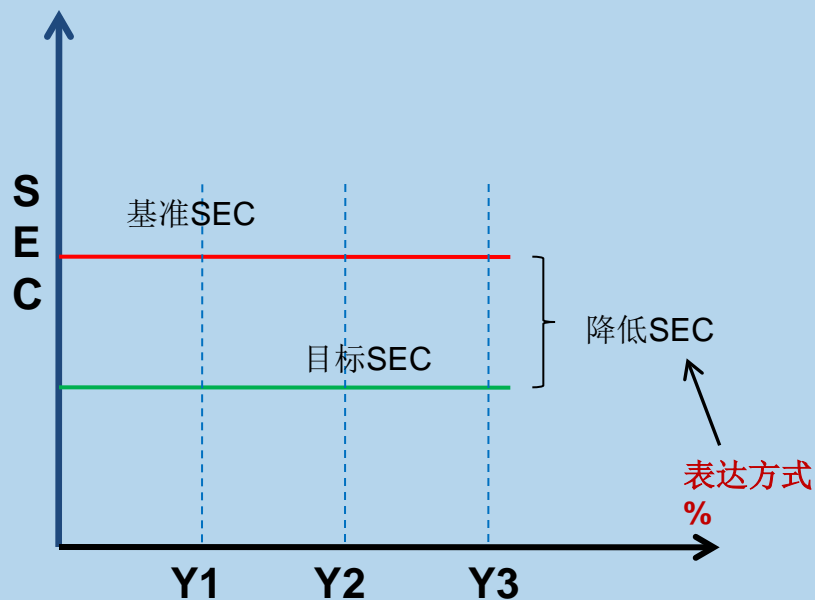




PAT目标



目标是比‘比能消费（SEC）’基准值降低的百分比





Profile of Designated Consumers



SN	Sector	No. of Identified Designated Consumers	Reported Energy Consumption	Share	Appportioned Energy reduction
			(MTOE)*	(%)	(MTOE)
(In Actual Scenario)					
1	Power (Thermal)	146	104.14	63.69	5.713
2	Iron & Steel	80	28.00	17.13	1.536
3	Cement	65	11.87	7.26	0.651
4	Fertilizers	28	7.86	4.81	0.431
5	Aluminium	10	7.73	4.73	0.424
7	Paper & pulp	31	2.09	1.28	0.115
6	Textile	85	0.97	0.59	0.053
8	Chlor-Alkali	18	0.84	0.51	0.046
Total		463	163.50	100%	8.97

* MTOE: Million tonnes of oil equivalent



Profile of Designated Consumers

指定消费者概述



序列号	领域	确定的指定消费者数量	报告的能源消费量	比例	分配的能源降低量
			(MTOE) *	(%)	(MTOE)
			(实际情景下)		
1	电力 (热电)	146	104.14	63.69	5.713
2	钢铁	80	28.00	17.13	1.536
3	水泥	65	11.87	7.26	0.651
4	化肥	28	7.86	4.81	0.431
5	铝	10	7.73	4.73	0.424
7	纸浆	31	2.09	1.28	0.115
6	纺织	85	0.97	0.59	0.053
8	氯-碱	18	0.84	0.51	0.046
总计		463	163.50	100%	8.97

*MTOE: 百万吨油当量



Market Design (1)

市场设计 (1)



- Designated Consumers are obligated to improve energy efficiency
 - Plants in an industry clustered on the basis of their Specific Energy Consumption
 - Each cluster given an energy efficiency improvement percentage target
 - The target is converted into an absolute energy saving target in million tonnes of oil equivalent (MTOE) on the basis of plant capacity
 - The absolute energy saving target is applicable for a compliance period of three years
- 指定消费者有责任改善能效
 - 根据SEC对工业分组,工厂位于某一个组别中
 - 每个组别设定一个能源改善百分比目标
 - 根据工厂能力,将目标转化为百万吨油当量(MTOE)的绝对节能目标
 - 绝对节能目标适用于为期三年的合规期



Market Design (2)

市场设计 (2)



- Designated Consumers can meet target by:
 - Undertaking energy efficiency measures by themselves
 - Selling their obligations to someone else
 - Designated Consumers can sell obligations by paying money to the buyer
 - The obligation buyer's target increases correspondingly and he has to make that much more energy efficiency improvement
 - Buying Energy Saving Certificates from someone else
- 指定消费者能够通过下述方式满足目标：
 - 自行实施能效措施
 - 将其指标销售给他人
 - 指定消费者可以通过向买方付费，销售其指标
 - 指标买方的目标相应增加，指标买方必须实现更好的改善能效
 - 从他人购买节能证书



Market Design (3)

市场设计 (3)



Compliance and Reporting

- Total compliance period of three years, broken into annual compliance periods
- Designated Consumers undertake energy efficiency measures and submit annual reports
- If submitted annual reports show over-achievement, Energy Saving Certificates are issued for level of over-achievement
- Provision of annual reporting along with penalties in case of non-compliance

合规和报告

- 将为期三年的合规期划分为年度合规期
- 指定消费者实施能效措施，提交年度报告
- 如果提交的年度报告显示超额目标，节能证书根据超额目标颁发
- 在出现不合规情况时，提供年度报告、缴纳罚款



Market Design (4)

市场设计 (4)



Compliance and Reporting (continued)

- After period of three years, a complete gate-to-gate measurement is undertaken to verification of each Designated Consumer
- Bureau of Energy Efficiency appoints Designated Energy Auditors for monitoring verification and reporting
- In case of non-compliance, State Designated Agencies (SDAs) levy penalties on Designated Consumers

合规和报告 (续)

- 在三年期后，采取完整的门到门衡量措施，以对每位指定消费者进行认证
- 能效局任命特定的能源审计师，以监督认证和报告的实施情况
- 在不合规情况下，国家指定机构（SDA）向指定消费者征收罚款



Market Design (5)

市场设计 (5)



- Energy Saving Certificates are issued:
 - When energy efficiency improvements surpass targets
 - Certificate in units of 1 MTOE or 1 kgoe
 - Banking of Certificates allowed during each cycle
 - 1st cycle Certificates to 2nd cycle
 - 2nd cycle Certificates to 3rd cycle
- Partial issuance of Certificates can be allowed on an ex-ante basis to Designated Consumers on submission of Project Design Documents to Scheme Administrator
- 节能证书在下述情况下颁发：
 - 当能效改善超过目标时
 - 以1MTOE或1公斤油当量(kgoe)为单位的证书
 - 每个循环期间可以累计证书
 - 第一个循环的证书使用至第二个循环
 - 第二个循环的证书使用到第三个循环
- 当指定消费者提交项目设计文件(PDD)给监管部门时，部分证书可以事先颁发



Market Design (6)

市场设计 (6)



Registry

- Obligations and Energy Saving Certificates are held in electronic form and registered with a depository
- All Designated Consumers will have electronic accounts and trading systems
- System Registry maintains track and record of all transactions

注册

- 指标和节能证书以电子形式持有，注册时缴纳保证金
- 所有指定消费者将拥有电子账户和交易系统
- 系统注册部门对所有交易进行跟踪和记录



Market Design (7)

市场设计 (7)



Trading

- All obligations and Energy Saving Certificates can be traded through electronic platforms provided by power exchanges
- Trades take place through automated order driven exchange trading systems
- Financial settlement is undertaken through electronic bank interfaces

交易

- 所有指标和节能目标可以通过电力交易中心提供的电子平台进行交易
- 通过自动订单驱动的交易系统进行交易
- 财务报表通过电子银行界面实施



Funding Mechanisms (1)

基金机制 (1)



- **Partial Risk Guarantee Fund**
 - Provides comfort to lenders by provision of a risk guarantee for performance contract
- **Venture Capital Fund for Energy Efficiency**
 - Initial seed capital from Government budget
- These two instruments may be used for promoting energy efficiency in manufacturing of energy efficient products

- **部分风险保证金**
 - 通过提供履约风险保证，向贷款方提供支持
- **能效风险投资基金**
 - 来自政府预算的初始种子基金
- 这两种基金可以在能效产品生产中使用，以促进能效



Funding Mechanisms (2)

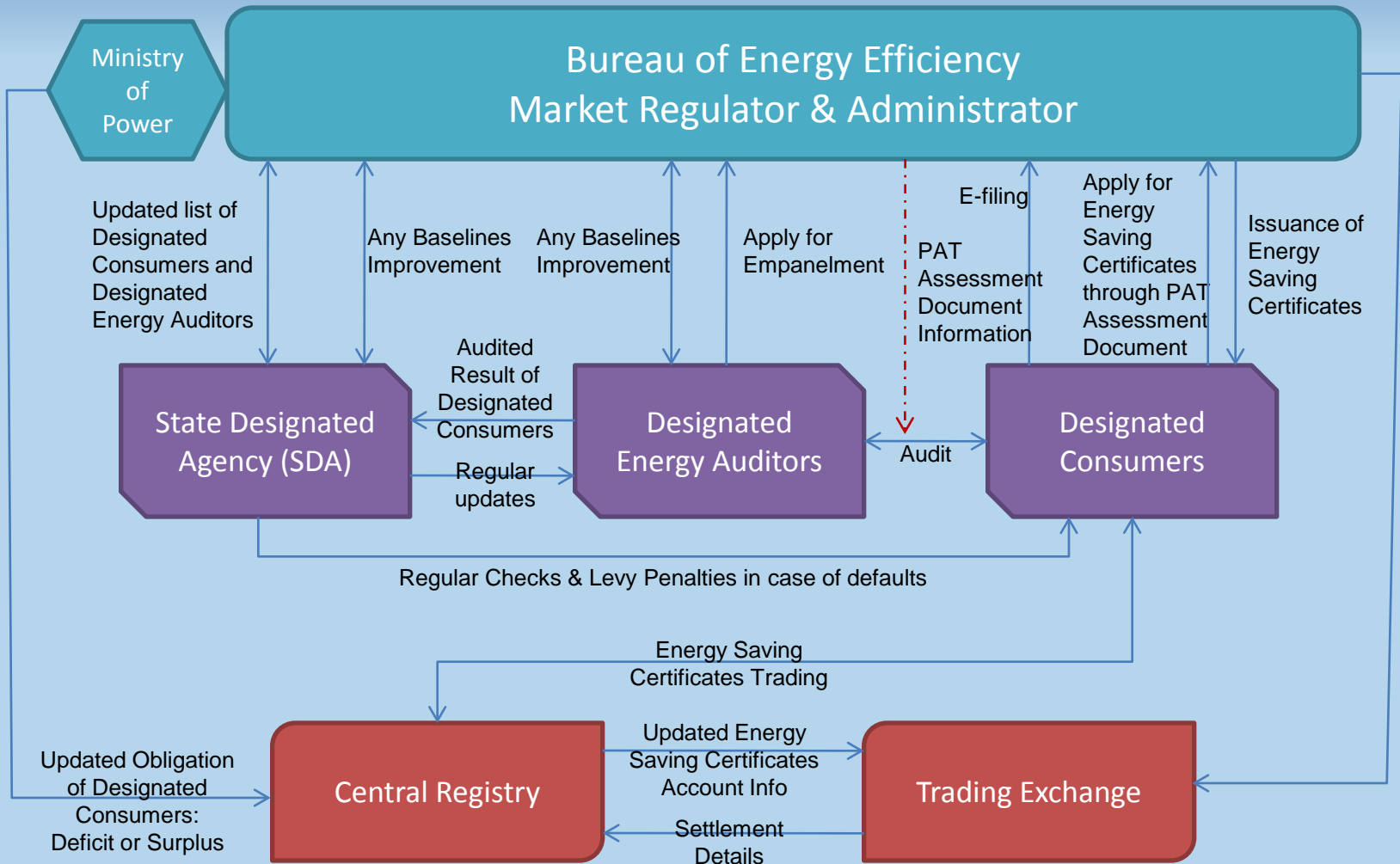
基金机制 (2)



- Bureau of Energy Efficiency is working with national and international experts to:
 - Design institutional structure for the management of funding mechanisms in India
 - Prepare legal documents
 - Design procedures and protocols
 - Registration of funds
- 能效局与国内和国际专家合作：
 - 为印度的基金机制管理设计机制结构
 - 编制法律文件
 - 设计程序和协议
 - 基金注册



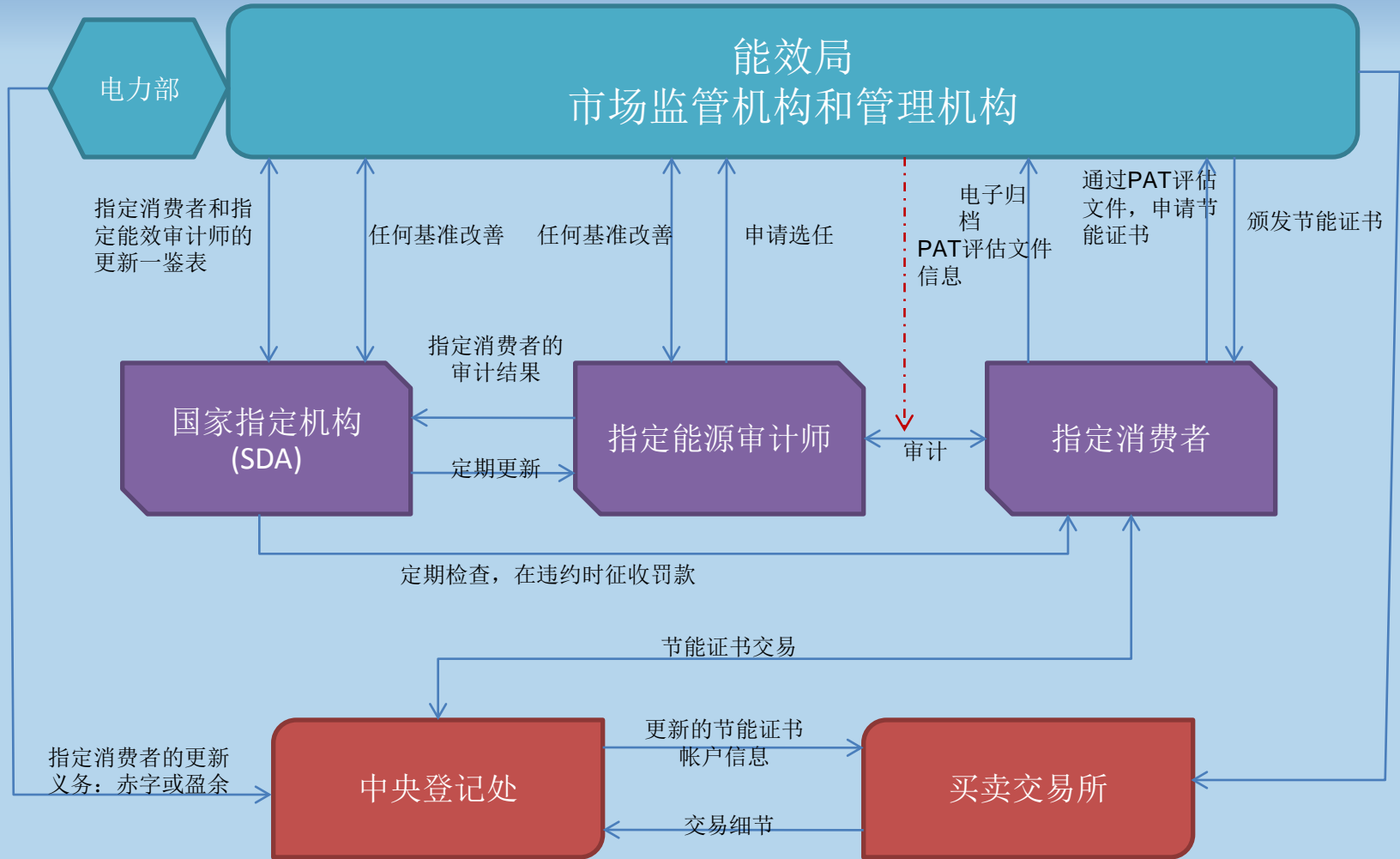
Proposed Institutional Design





Proposed Institutional Design

提议的机构设计





Conclusion

结论



- Robust and Reliable
- Induces tradability and liquidity
- Allows development of energy efficiency market
- In line with the existing structures and practices
- 稳健、可信赖
- 增加可交易性和流动性
- 促进能效市场的发展
- 符合现有结构和实践

For further information please visit:
更多信息，请登陆：

<http://www.bee-india.nic.in/>

<http://www.bee-india.nic.in/content.php?page=schemes/schemes.php?id=8>

http://www.bee-india.nic.in/NMEEE/PAT%20Consultation%20Document_10Jan2011.pdf



THANK YOU
谢谢

