

The Dutch Renewable Energy and Transition Policy Implementation

荷兰的可再生能源及能源转换政策

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Energy policy in the Netherlands 荷兰的能源政策

- **Ministry of Economic Affairs** 荷兰经济部
- **Core energy tasks are ensuring:** 核心任务:
 - ◆ **reliable supply** 可靠的能源供给
 - ◆ **affordable supply** 经济上可承受的能源供给
 - ◆ **clean supply** 实现清洁能源供给
- **Encourage companies to develop and use environment-friendly technologies that use less energy**
- 鼓励企业开发和运用环保节能的技术



Renewable energy policy agenda 可再生能源政策实施议程

Governed by: 依据:

- **National CO₂ emission reduction obligations under the Kyoto Protocol**
- 京都议定书中针对荷兰的CO₂减排义务
- **European Union Directive on the Promotion of Renewable Electricity**
- 欧盟促进可再生能源电力法案

Renewable energy policy targets

可再生能源政策目标

For 2010: 到2010年:

- **5% of total primary energy use**
- 一次能源使用中可再生能源比重达到**5%**
- **9% of total electricity supply**
- 电力供应中可再生能源比重达到**9%**

For 2020: 到2020年:

- **10% of total primary energy use**
- 一次能源使用中可再生能源比重达到**10%**
- **17% of total electricity supply**
- 电力供应中可再生能源比重达到**17%**

Renewable energy priority options for 2010

2010年可再生能源利用目标

- **Wind energy** 风能
 - ◆ **30% of renewable electricity goal**
 - ◆ 在可再生能源电力中的比重达到**30%**
 - ◆ **equal to 1,500 MW land-based capacity**
 - ◆ 陆地装机达到**1500MW**
 - ◆ **6000 MW capacity offshore (no later than 2020)**
 - ◆ 近海装机达到**6000MW**（2020年之前）
 - ◆ **offshore construction: 100 MW in 2004, 120 MW in 2005**
 - ◆ 近海开发：**2004年100MW， 2005年120MW**
- **Bio energy** 生物质能
 - ◆ **60% of renewable electricity goal** 在可再生能源电力中的比重达到**60%**
 - ◆ **equal to 97 PJ** 相当于**97皮焦耳**
- **10% from electricity options in buildings (PV etc.)**
- 建筑物中**10%**的电力供给来自可再生能源（太阳能等）

Renewable energy action plans 2010 2010年可再生能源实施方案

Create attractive investment climate for:
创造良好的投资环境

- **Wind energy: Wind Energy Task Force**
- 风能：风能发展计划
- **Bio energy: Action Plan 2004 - Bio Energy**
- 生物质能：2004年行动计划

Realization Group 实施办法

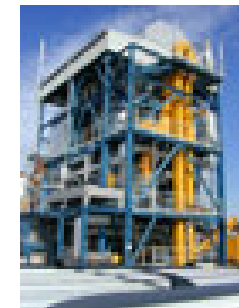
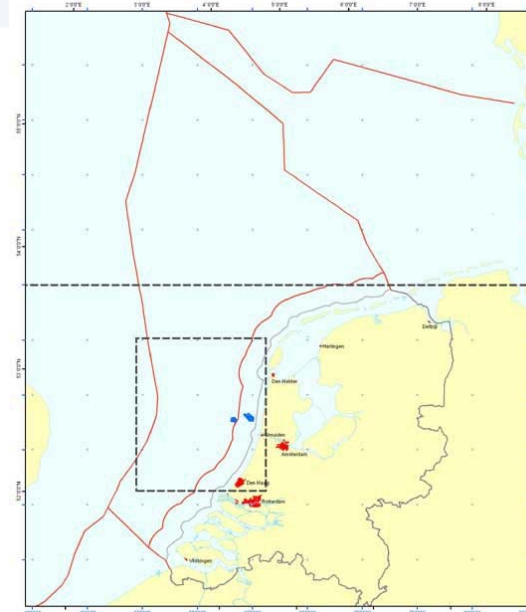
- ◆ **co-firing in coal power stations** 在煤电厂中使用生物质燃料
- ◆ **waste incineration** 废弃物焚化
- ◆ **anaerobic digestion of animal excrement etc.**
- ◆ 动物排泄物厌氧处理
- ◆ **biogas cogeneration** 沼气发电
- ◆ **biofuels for transportation** 在交通运输中采用生物质燃料



Renewable energy action plan focus for 2020 2020年可再生能源行动目标

- **Offshore wind energy**
- 近海风能

- **Biogas cogeneration**
- 沼气发电



Renewable energy policy instruments and measures 可再生能源政策措施和手段

Demand-side and supply-side:

供需方之间:

- **Voluntary agreements (until 2000)**
- 自主协议（到2000年）
- **Fiscal measures: 财政措施:**
 - ◆ **accelerated depreciation environmental investments**
 - ◆ 降低环境投资成本
 - ◆ **regulating energy tax (tax exemption ends 2005)**
 - ◆ 能源税管理（2005年将免除能源税）
 - ◆ **energy investments (55%) tax relief**
 - ◆ 能源领域投资领域将减免税55%
- **Investment subsidies: 投资补贴**
 - ◆ **energy performance advice and energy premiums**
 - ◆ 能源效能建议和能源贴现
- **Feed-in premiums (tariff subsidies): 价格补贴**
 - ◆ **environmental quality of electricity production**
 - ◆ 电力生产的环境质量

Additional renewable energy policy measures 其他可再生能源政策措施

- **Green certificate trading scheme (electricity)**
- 绿色证书交易（电力）
- **Governmental incentive programmes for implementation of RES technologies**
- 来自政府的促进可再生能源技术应用的优惠政策
- **CO₂ emission reduction programme**
- CO₂ 减排计划
- **Coal replacement subsidy (biomass)**
- 煤炭替代补贴（生物质）
- **Regional incentive programmes**
- 地区优惠政策
- **Innovative collaboration projects**
- 新技术合作项目
- **Green funding (non-governmental)**
- 绿色基金（非政府组织）

Feed-in electricity tariffs 2005

2005年补贴电价

Renewable energy type <i>可再生能源类型</i>	Yuan/kWh <i>元/千瓦时</i>
Landfill gas 垃圾掩埋气体	0.2355
Mixed biomass 混合生物质	0.3105
Pure biomass 纯生物质	0.7495
Wind energy, land-based 陆地风能	0.8244
Wind energy offshore, small bio energy, hydro power, PV and tidal/wave energy <i>近海风能、小规模生物质能、水电、太阳能和潮汐能</i>	1.0386
<i>tariffs reviewed annually</i> <i>电价每年可能会有变化</i>	

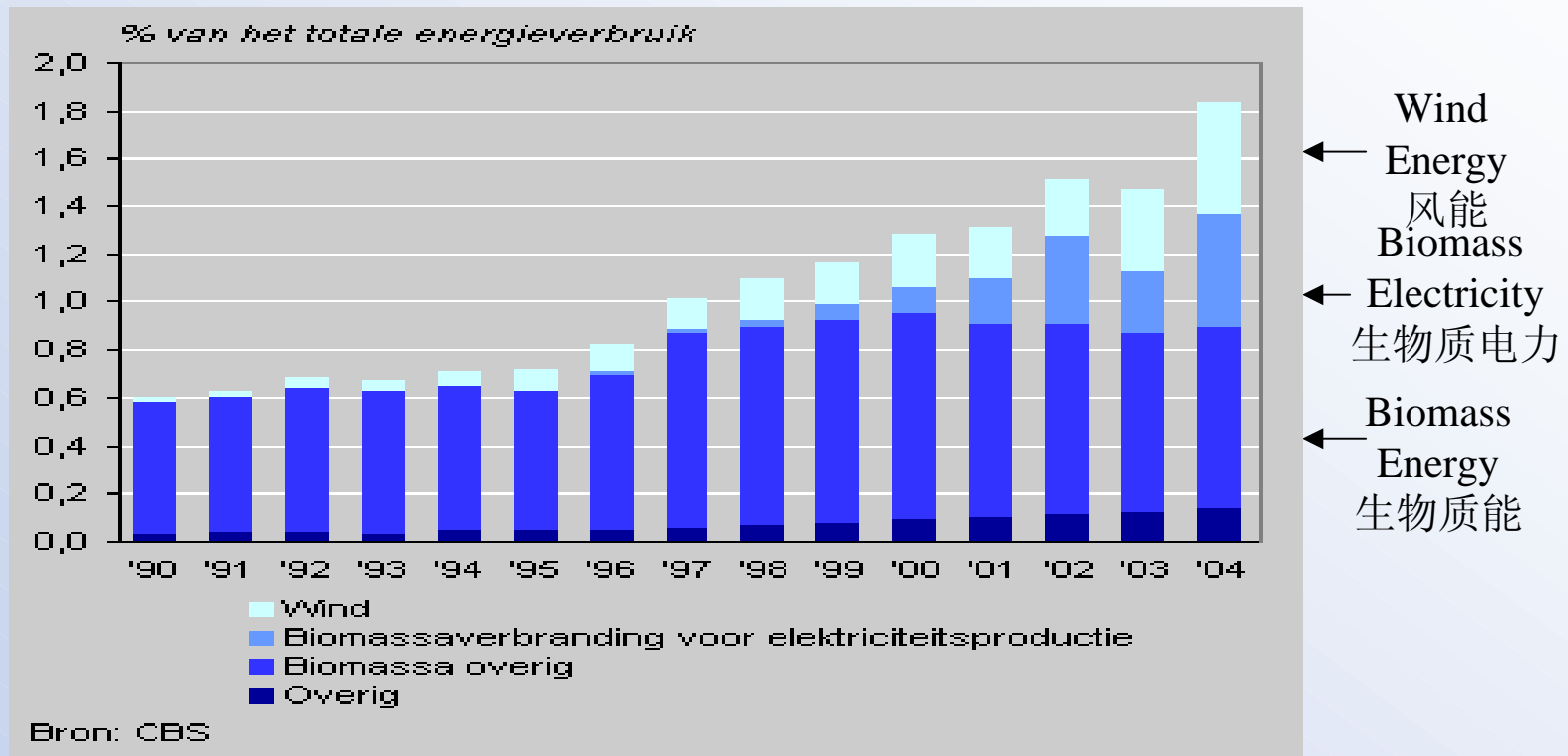
Renewable energy market status

可再生能源市场状况

- **Market development is lagging behind target for 2010**
- 市场发展落后于**2010**年应达到的目标
- **Production in 2004: 1.8% of TPES (target 2010: 5%)**
- **2004**年生产情况：在一次能源中占**1.8%**（**2010**年目标：**5%**）
 - ◆ **majority electricity produced from co-fired biomass and wind**
 - ◆ 电力供应主要来自生物质能和风能
 - ◆ **heat production approximately 30%**
 - ◆ 可再生能源在供暖中约占**30%**的比重
- **Renewable electricity consumption: 13.8% from renewable sources, of which 4.5% domestic production (target 2010: 9%)**
- 可再生能源电力消费：**13.8%**来自可再生能源，其中**4.5%**由本国生产（**2010**年目标为**9%**）

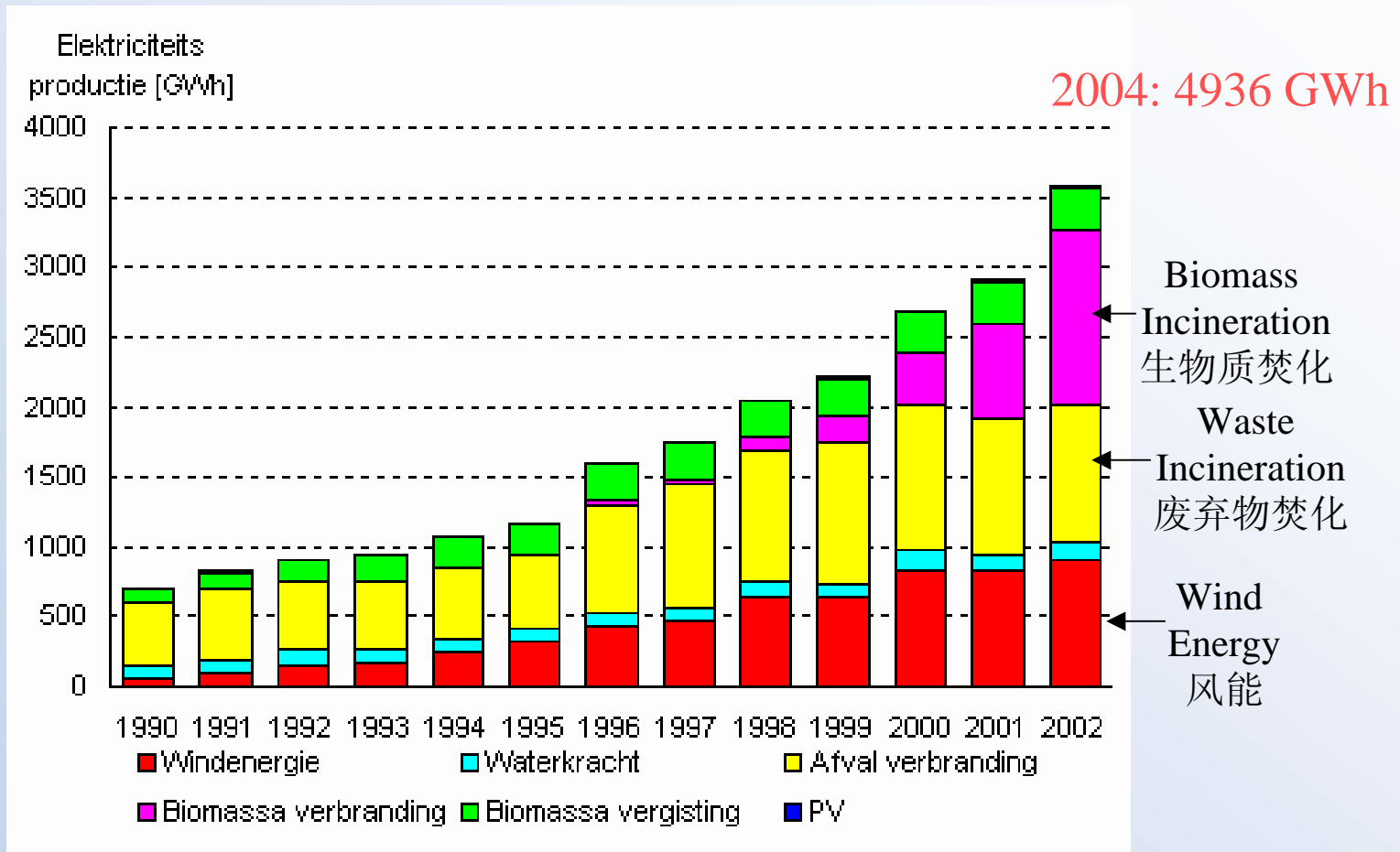
Renewable energy share from domestic sources (NL)

荷兰的可再生能源配置



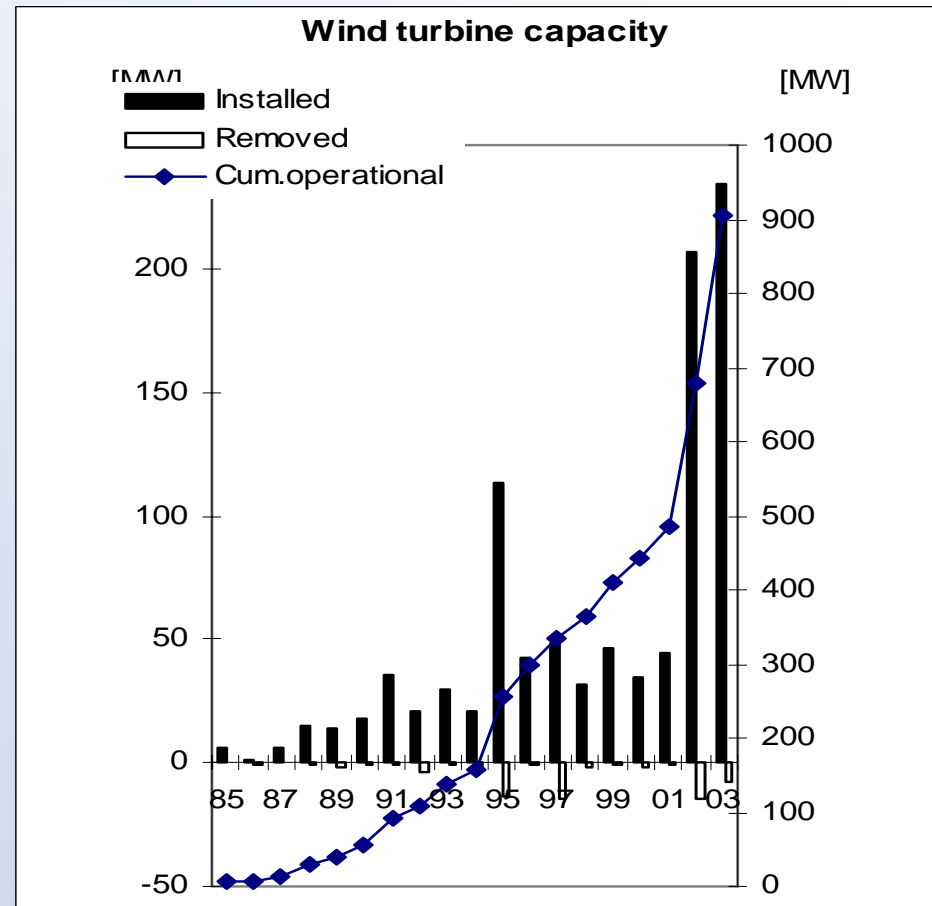
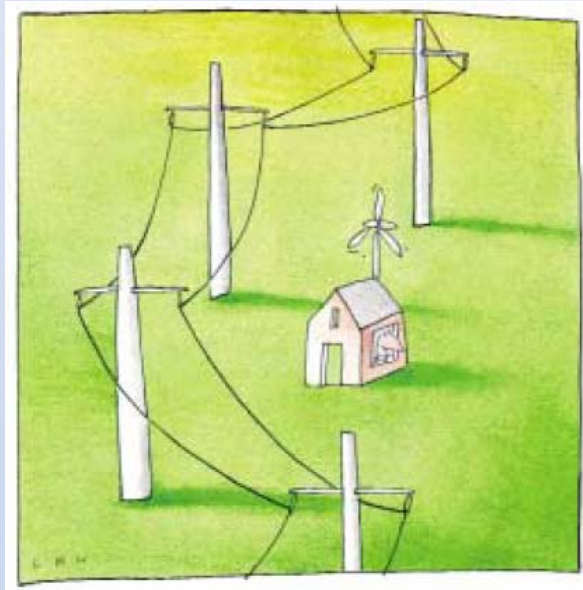
Renewable electricity production in the Netherlands

荷兰的可再生能源电力生产



Wind turbine capacity in the Netherlands

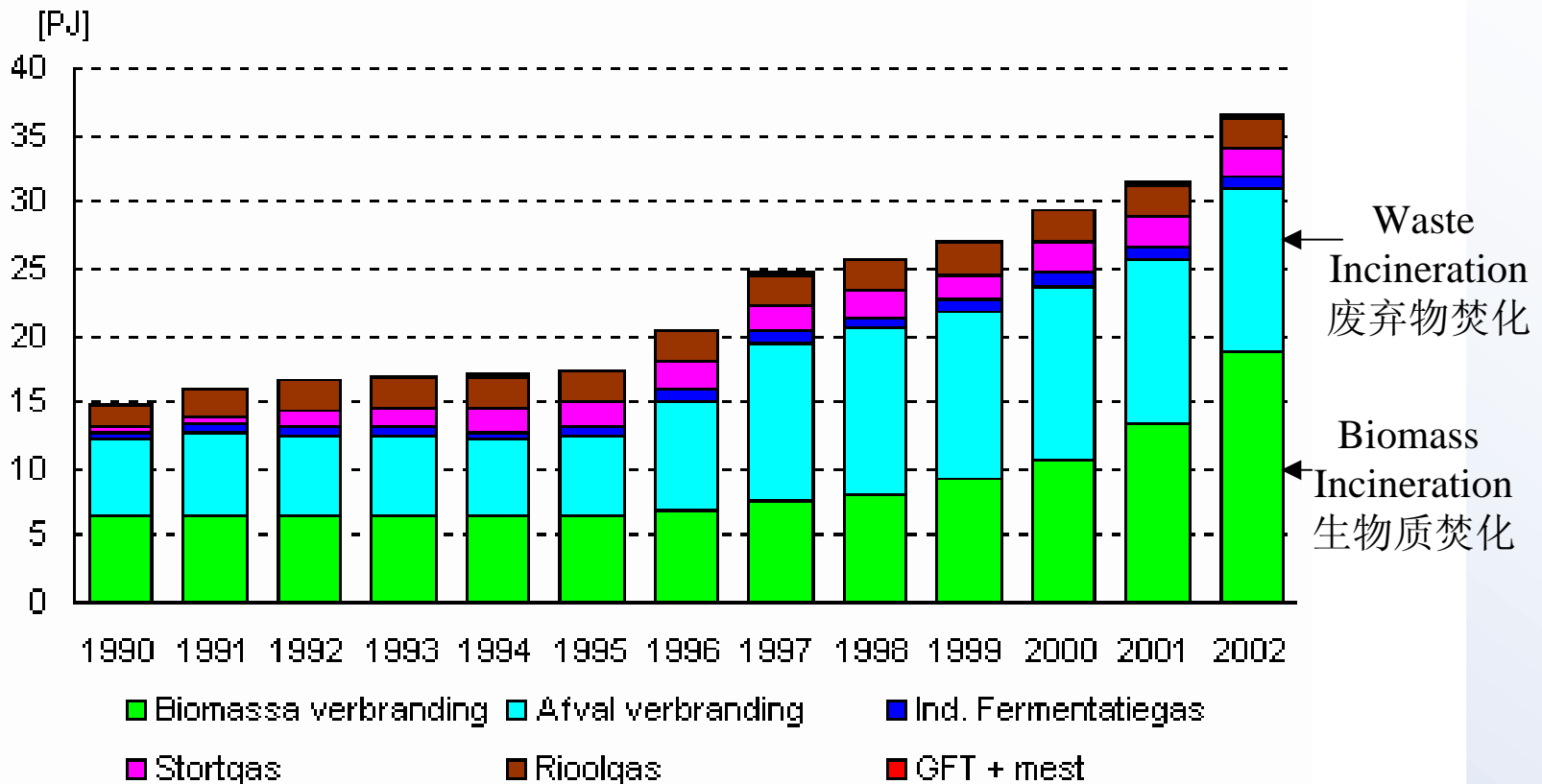
荷兰的风电装机



Development of bio energy in the Netherlands

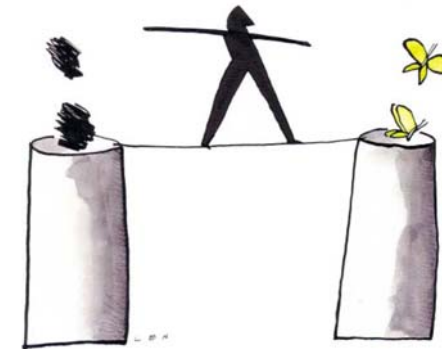
荷兰的生物质能开发

2004: 40.3 PJ



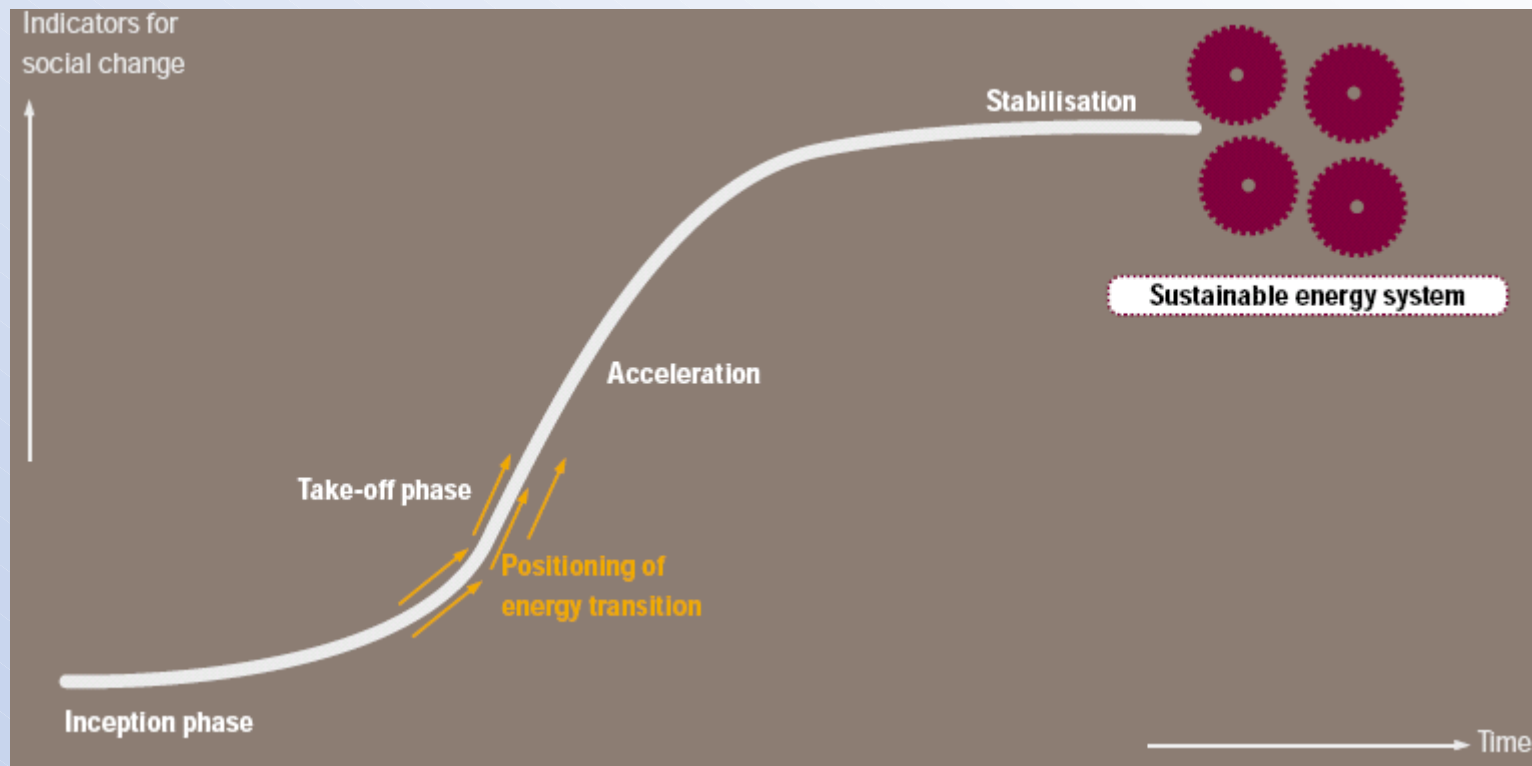
Innovation in energy policy 能源政策的变化

- **Policy aims at realizing an energy system that is:**
- 能源政策着重实现能源系统的：
 - ◆ **Reliable** 可靠性
 - ◆ **Efficient** 高效率
 - ◆ **solves the climate problem**
 - ◆ 解决气候变化带来的不利影响
- **Transition to a sustainable energy system:**
- 向可持续发展的能源系统转变
 - ◆ **an inevitable change** 必然性
 - ◆ **requires pro-active thinking, courage and guts**
 - ◆ 需慎重考虑并大胆实施
 - ◆ **learning by doing** 在实践中不断摸索
 - ◆ **realization in 20-30 years seems possible**
 - ◆ 在20-30年内实现目标存在可能性
 - ◆ **requires international collaboration** 需要国际合作



Positioning of the energy transition

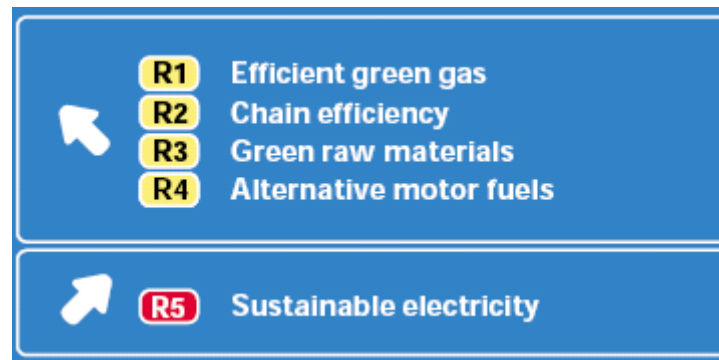
能源转换配置



Energy transition characteristics

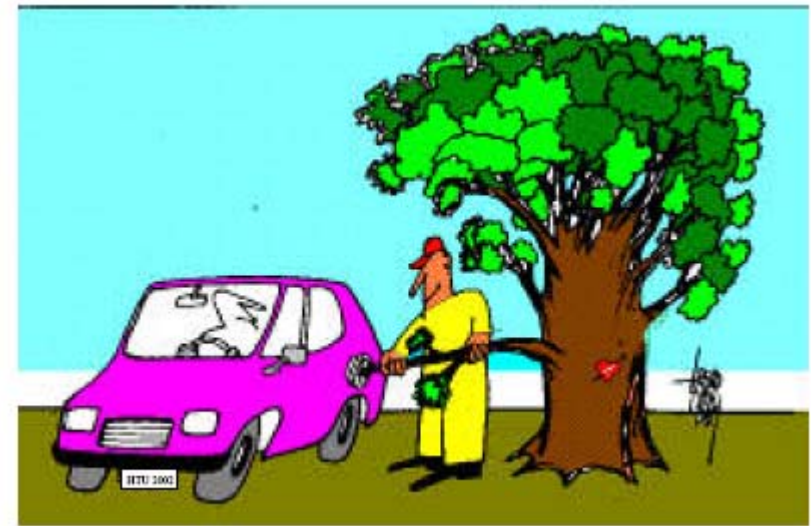
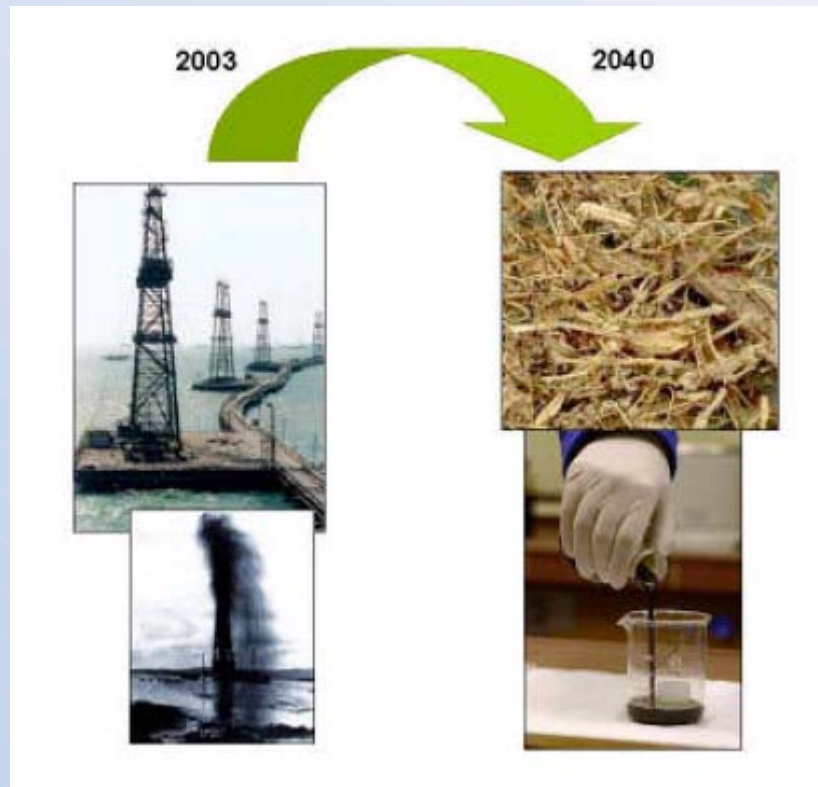
能源转换的特点

- **Collaborative effort between government, business and societal organizations**
- 需要政府、企业和社会其他部门的共同合作
- **Five priority fields:**
- 5个优先发展的领域



- **Each field has specific transition paths that focus on technology and social/economic/institutional aspects**
- 每个领域在涉及技术和社会、经济和制度方面都具有自身的转换途径
- **Experiments/research support the transitions** 科研支持

Example of transition experiments - biomass to biofuel 能源转换实例-生物质转换成生物质燃料



Integration of current policy and transition approach 当前政策和能源转换措施的结合

- **Current energy policy will be aimed for meeting 2010 targets, and**
- 当前政策着眼于**2010**年应达到的目标
- **Creating the right market conditions to keep the sustainability ambitions attainable and affordable in the long term**
- 为长期的能源可持续发展创造良好的市场环境
- **This requires a fundamental change in attitude and the way of thinking from all**
需要人们在态度和认识上有根本的改变

