

# **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 transition 能源转换**

## 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 CO<sub>2</sub> emission reduction obligations under the Kyoto Protocol**
- 京都议定书中针对荷兰的CO<sub>2</sub>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

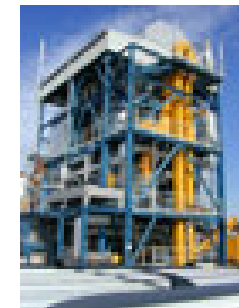
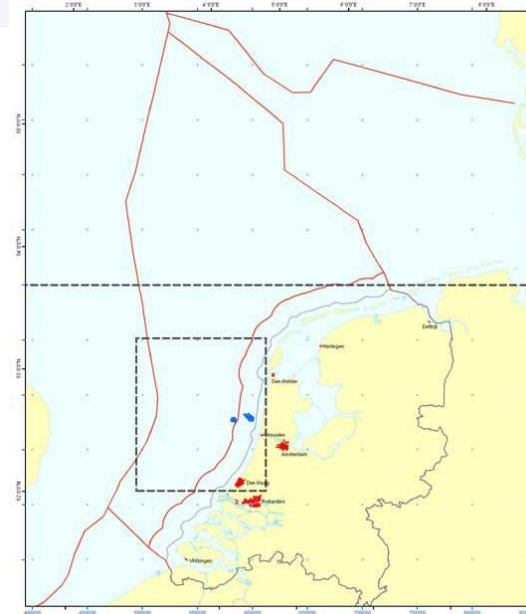
**Realization Group 实施办法**

- ◆ **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
- **CO<sub>2</sub> emission reduction programme**
- CO<sub>2</sub> 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

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

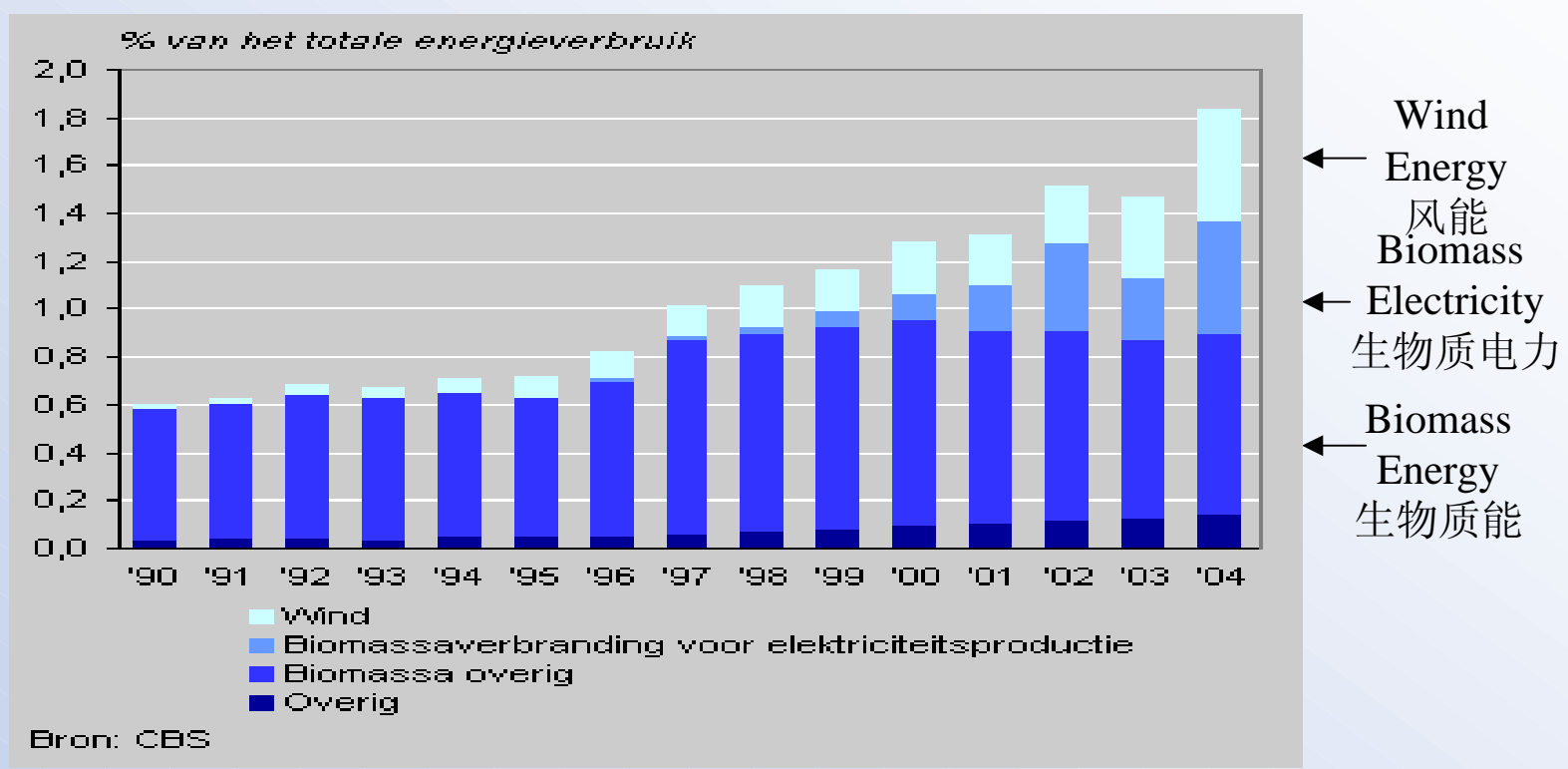
## Renewable energy market status

### 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%**）

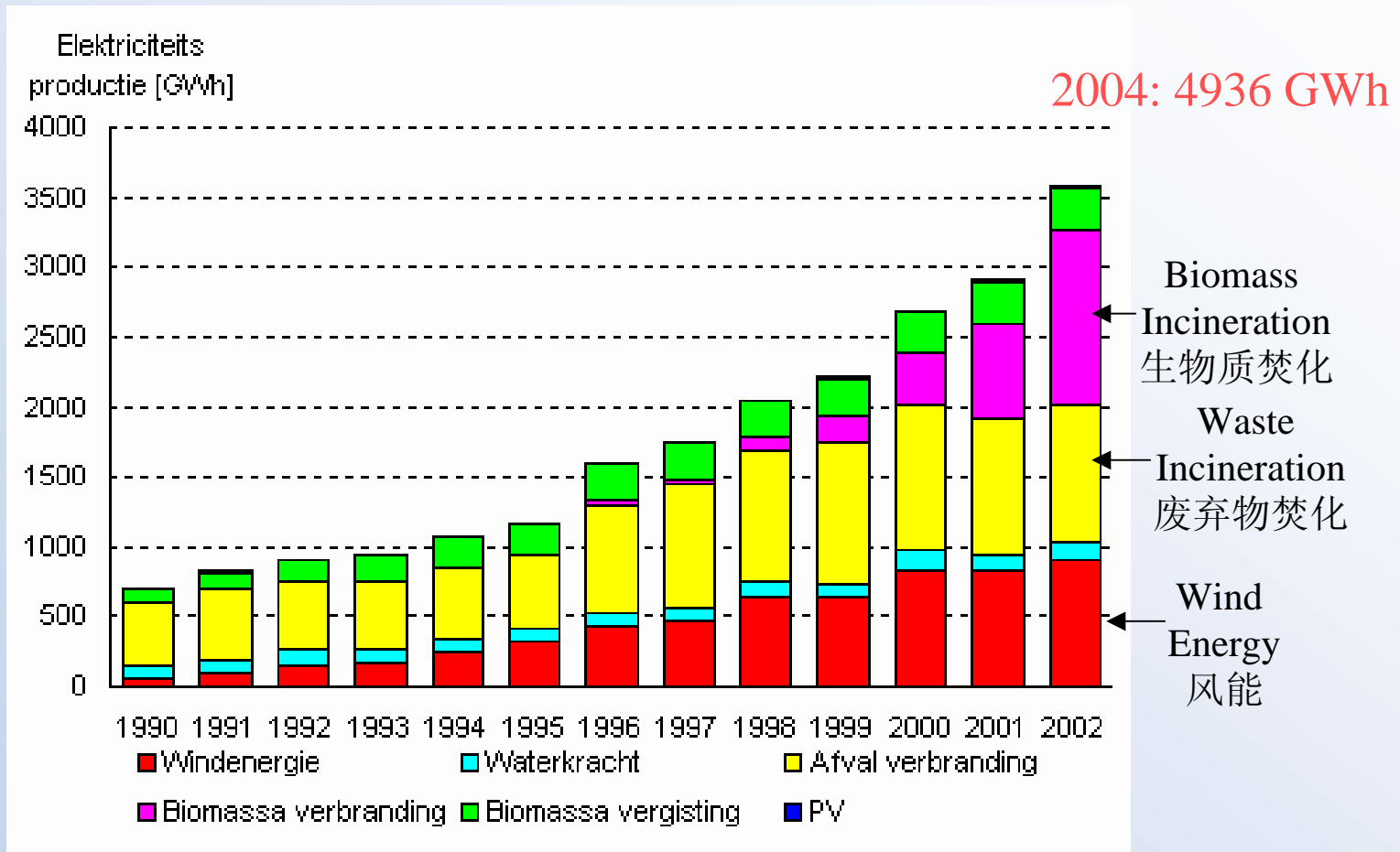
# Renewable energy share from domestic sources (NL)

## 荷兰的可再生能源配置



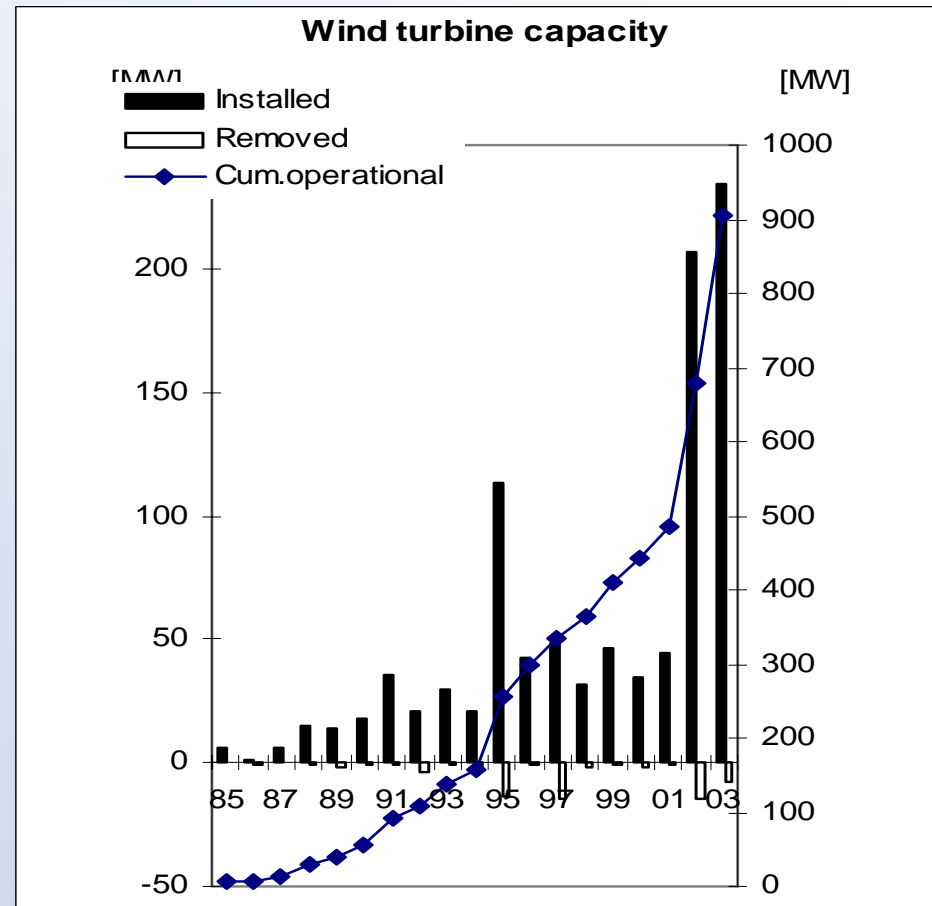
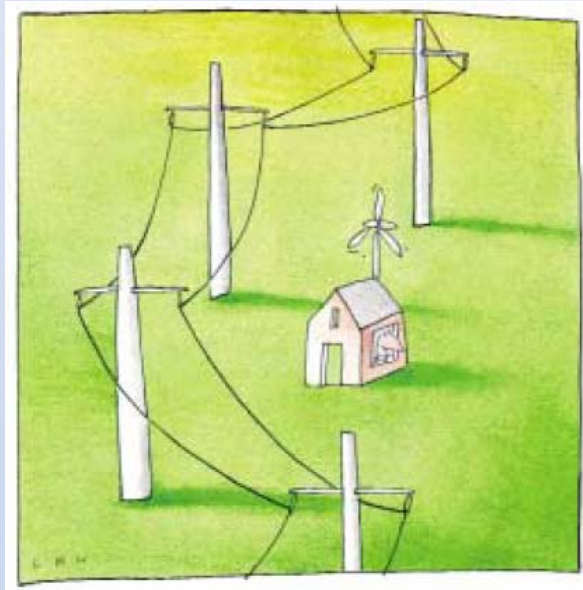
# Renewable electricity production in the Netherlands

## 荷兰的可再生能源电力生产



# Wind turbine capacity in the Netherlands

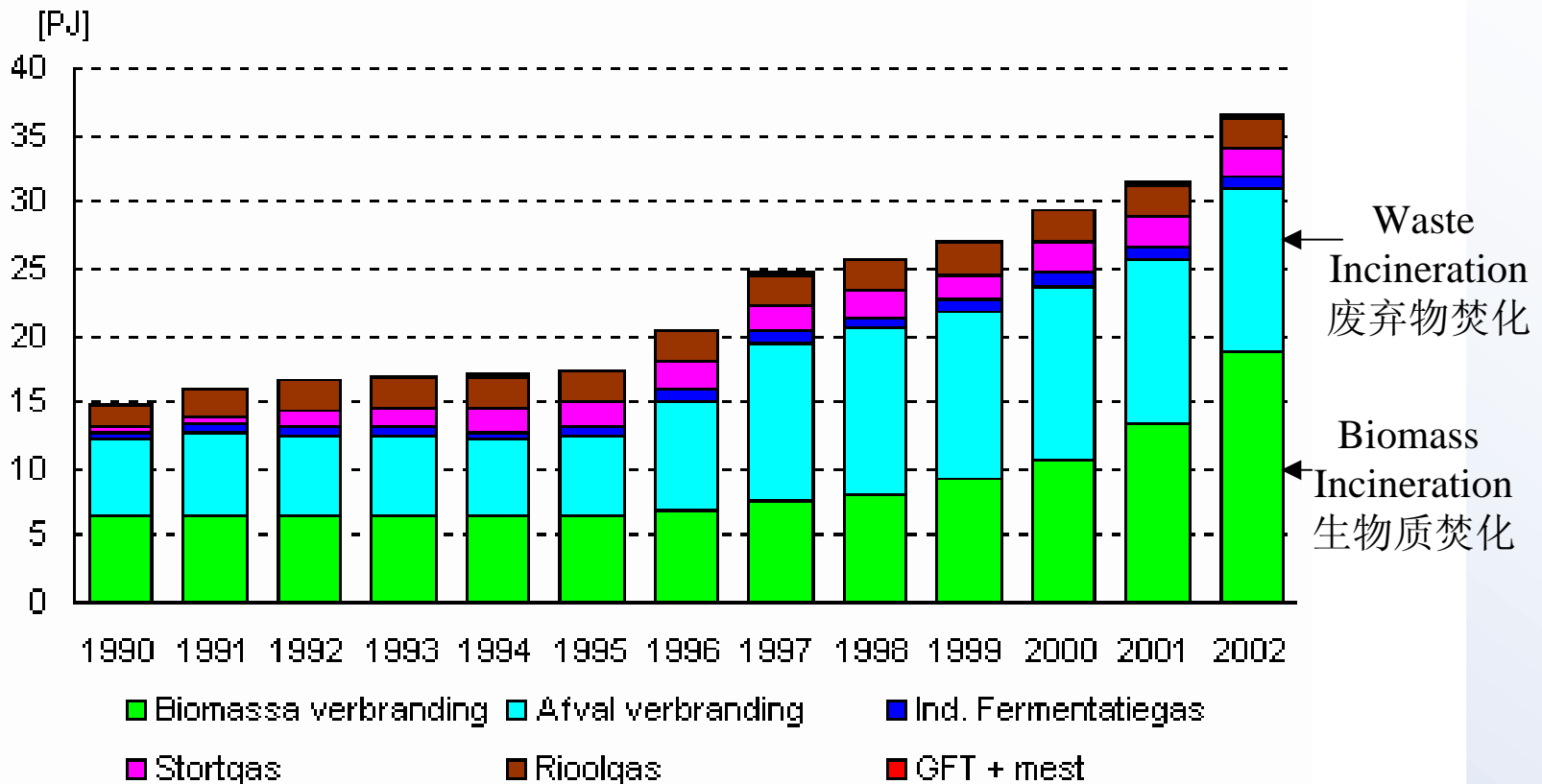
## 荷兰的风电装机



# Development of bio energy in the Netherlands

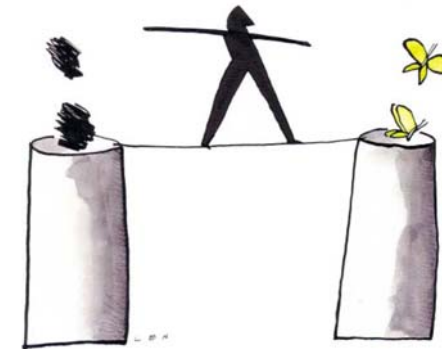
## 荷兰的生物质能开发

2004: 40.3 PJ



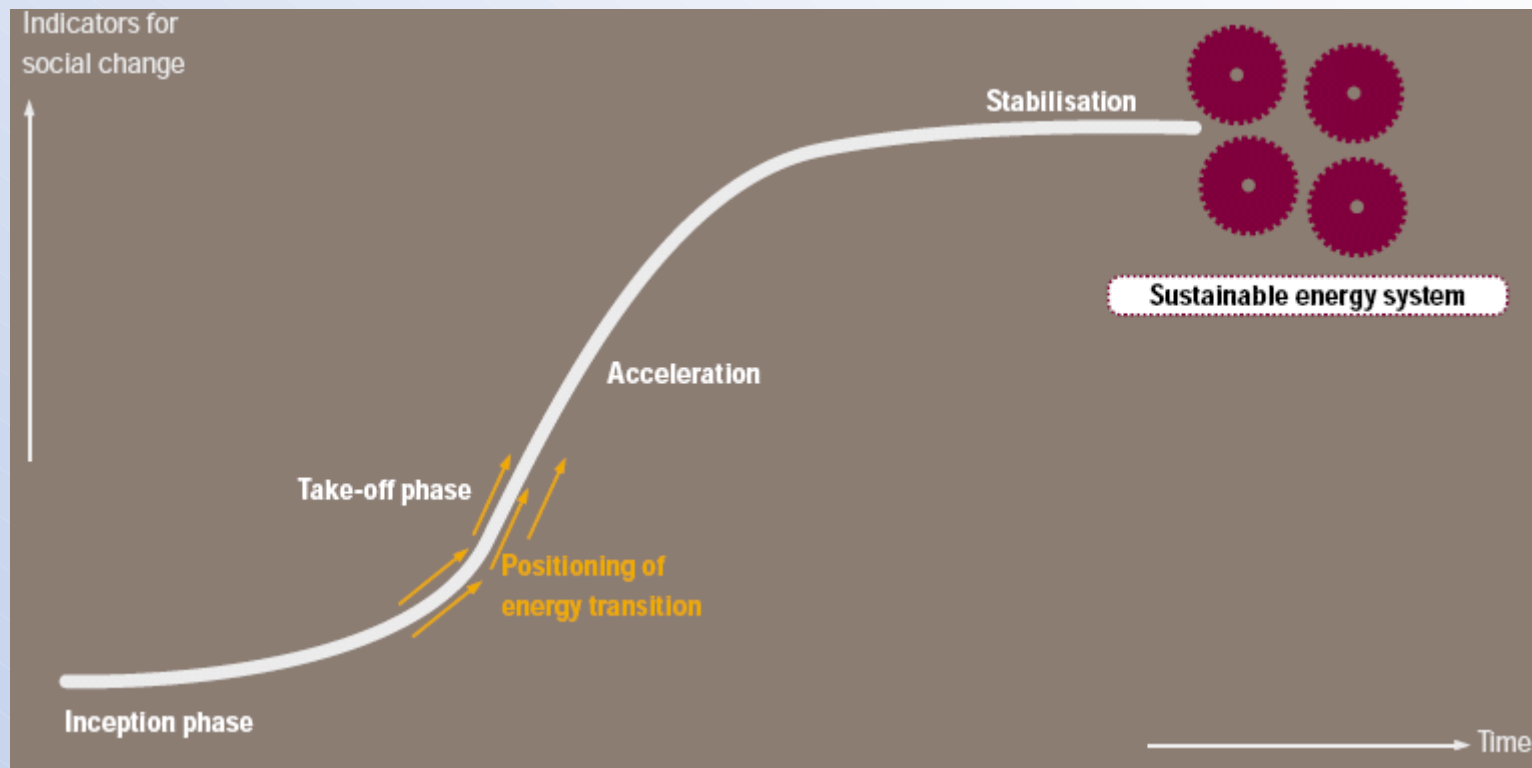
## Innovation in energy policy 能源政策的变化

- **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

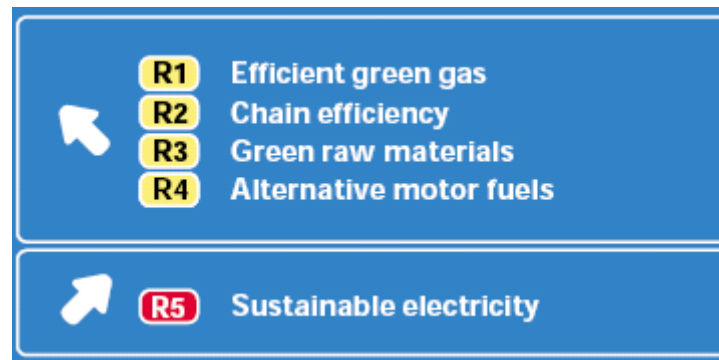
## 能源转换配置



## 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 and 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

