

Clean Air Renewable Energy Coalition

February 7, 2001

Are the CARE proposals supporting actions that consumers and producers would undertake in any event?

- **Experience of other countries has shown that even in countries dependent upon very high fossil-fuel energy supply have needed to implement incentive programs and other mechanisms to kick-start the renewables industry (see attached country summaries)**
- **Consumers consistently state a preference for energy sources that promote clean air and energy diversification but these opinions do not readily translate into green power purchases**
- **Most consumers are not given information on power sources nor a choice of source(s) – something provision of a consumer credit would help to rectify**
- **The price of energy has increased dramatically across the country, most notably in deregulated energy environments like Alberta – consumers are unlikely to choose to pay a greater premium for green power without some incentive**
- **Incentives to producers do not necessarily flow through to consumers because the current system is not fully transparent**
- **Project economics are still marginal, long term price risk and capital costs are too high**
- **The projects undertaken, to date, have been “one-offs” in response to specific procurement initiatives or to enable the producer to “get a toe in the door”**

Why Aren't Producer Tax Credits (supply-side) Incentives Enough?

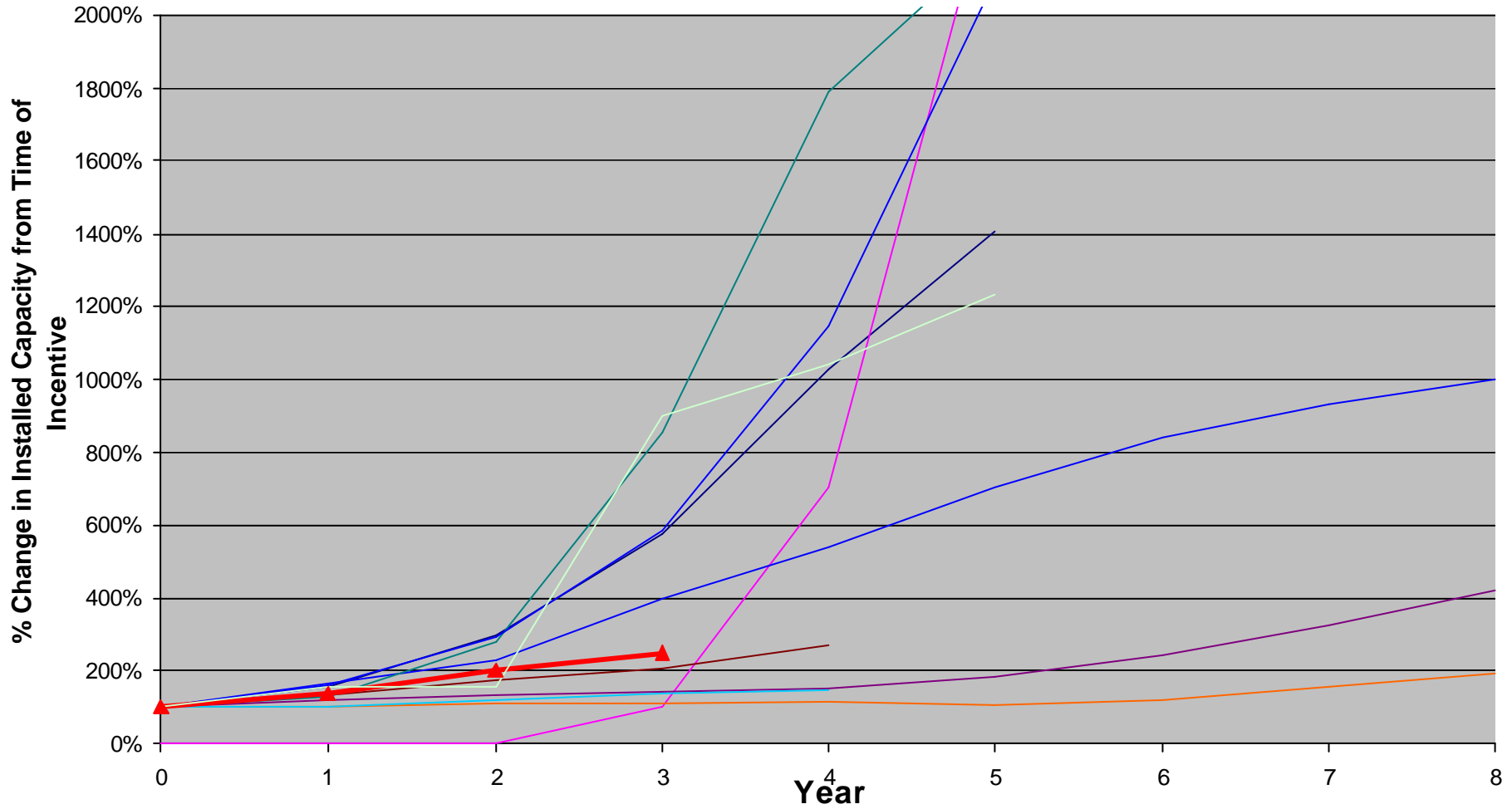
- The objective of our proposals is to increase the demand for and supply of low-impact renewables in Canada – to change consumer and producer behaviour
- In order to achieve the objective, it is preferable to engage broad participation from residential and business consumers and from producers, to begin to better inform consumers and involve them in purchase decisions among energy sources, and to ensure a more direct “line of sight” between the desired consumer behavior and the incentive
- Providing supply-side only support does not mean that incentives will flow through to consumers and it may have the unintended effect of creating an unsustainable renewable industry (ie, original California experience with abandoned and poorly maintained wind turbines; India experience incenting new supply projects with no market initiatives resulted in poor production practices)
- Proliferation problems can emerge when supply, like windfarms, is built without established and continued market demand in place
- The attached country analysis shows that most countries have introduced producer incentives as well as demand mechanisms (in the form of mandated purchase standards, renewable energy certificates, net metering, price fixing, consumer credits, etc.)

Are the Short Term Incentives Sufficient?

- We believe that the short-term measures proposed will provide an effective bridge until long-term government policies are in place
- Experience suggests that there will be a two year start-up phase for the renewable industry in order to achieve infrastructure, economies of scale, and administrative management and information systems (see chart showing countries' policies as yr 0 to the response in terms of capacity built relative to the estimates of response used by CARE)
- The federal government has indicated that it is considering a domestic emission trading system along with other measures to permit consumers and producers to monetize the value of GHG emission reductions resulting from renewable projects. Other countries have introduced tradeable renewable energy certificates or used mandated purchases etc. Canada can "go to school" on the effectiveness of these mechanisms to design a Canadian approach, while ensuring it does not lose time or erode competitiveness.
- We need to begin now to improve demand and access to markets so that the renewable industry achieves sufficient scale to respond when the long-term policy framework is in place
- It will be important to position the incentives as short term to be followed by the long term policies to ensure response is sustainable

Response to Incentives - International v. CARE assumptions

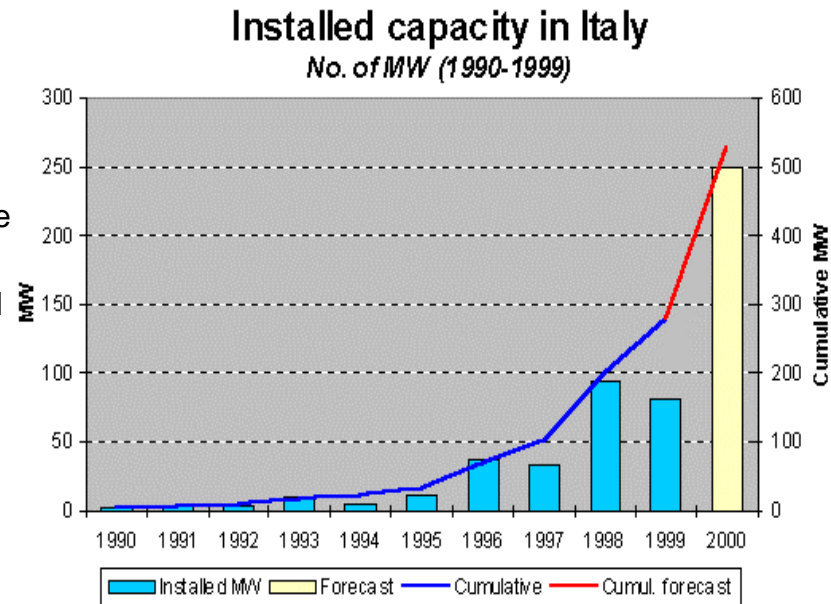
- Germany Electricity Feed Law
- United States Energy Policy Act
- Denmark Sustainable Development Strategy
- India (IREDA)
- Netherland (Capital Grant and Tax Incentives)
- Ireland
- United States (PERPA)
- Denmark Tax Incentive
- Denmark Energy 21
- Spanish Developer Incentives
- ▲ CARE



Summary of Other Country Initiatives

Italy

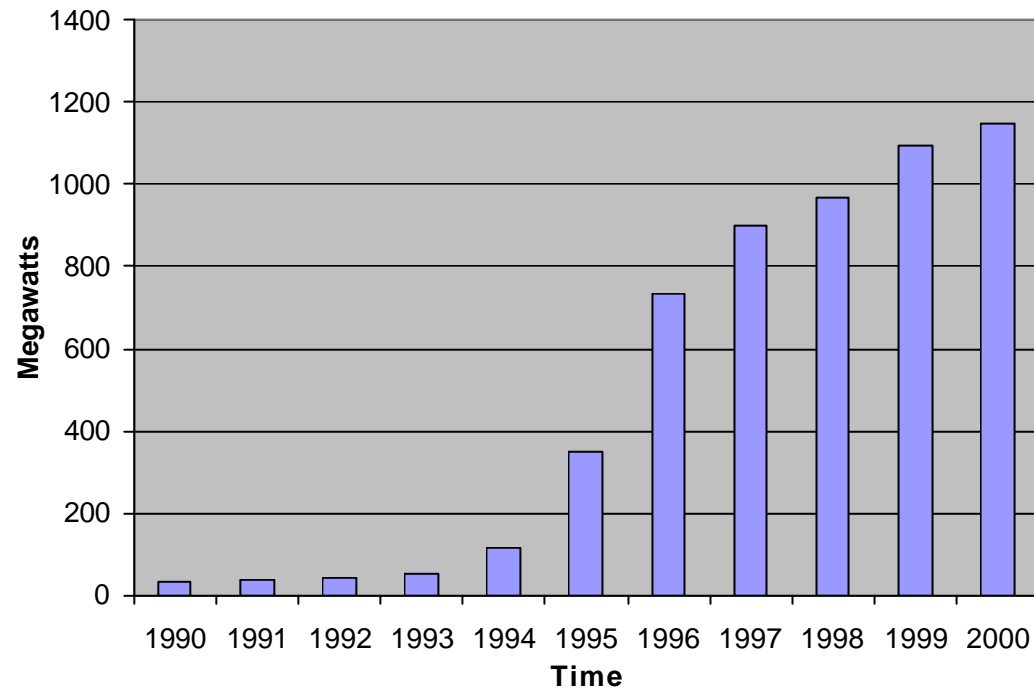
- Italy has less than 20% energy self sufficiency
 - 52% oil, 17% gas
- Political willingness to invest in renewables is now gaining ground
- National Energy plan passed in 1998 called for 300 MW of wind by 2000
 - Installed capacity at end of 1999 - 282 MW
- New law for 2% renewable quota by 2002 passed early in 2000
- A green certificate market is being formed in order to manage the quota system
- Each region also required to draw up renewables plan at local level
- Resolution of power purchase price for existing contracts has led to a record increase in orders
 - .104 Euro/kWh for 1st 10 years
 - .052 Euro/kWh over remaining lifetime
- Vestas (wind turbine manufacturer)
 - Formed JV with WEST now called IWT- Italian Wind Technologies
 - manufacturing capability 1998 - used for both Italian and other markets
 - 70% of Italian market
 - New Vestas order for 280 MW



India

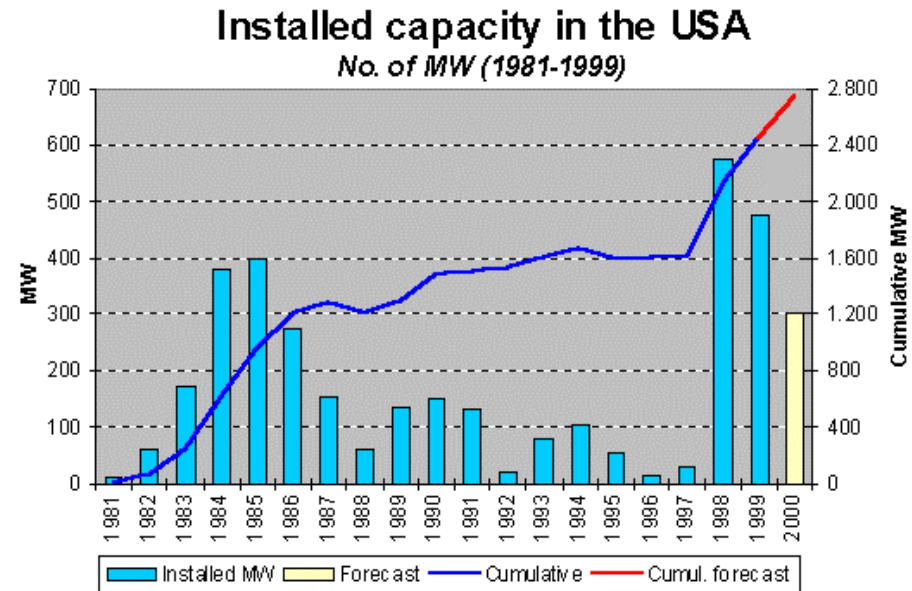
- **Concessional Import Duties:** permitted on 10 wind turbine components which have yet to be produced locally on a large scale to international quality standards. These components include blades, gear boxes, and brake assemblies.
- **Accelerated Depreciation:** 100% of investment costs may be deducted from taxes during the project's first year.
- **Income tax holidays:** Revenue generated during a new facility's first five years are not subject to central income tax.
- **Central Excise Tax:** electricity generated from wind turbines is not subject to the central government's excise tax on output.
- Cost of grid connection is shared between wind turbine generator owners and utilities.
- Original incentives for construction of renewables capacity resulted in poor maintenance and production

Installed Capacity in India 1990-2000



USA

- Cost of producing electricity has decreased nearly 4 fold since 1980
- Disappearance of California support structure in 1985
 - California tax incentive not renewed in 1985
 - Market collapsed
- Struggled for most of the 90's
 - Uncertainty caused by utility deregulation - no new investment in capacity
- Kenetech files for bankruptcy in 1996
 - Wind energy reputation damaged
- Expiration of PTC plus new plus new demand side incentives was a catalyst in the unprecedented growth in 1998 (green tag, mandated portfolios, net metering etc.)
- PTC has since been extended to projects completed by Dec 31st 2001
 - Currently at 1.7¢/kWh for 10 years
- “Wind Powering America” program
 - End goal to produce 5% of national electricity by 2020
 - Still in congress
- RPS's have been announced in 7 states mandating anywhere from 2 to 8 % renewables for existing and new capacity
- Utility Deregulation provides a choice for consumers
- Green power marketing is growing in most states

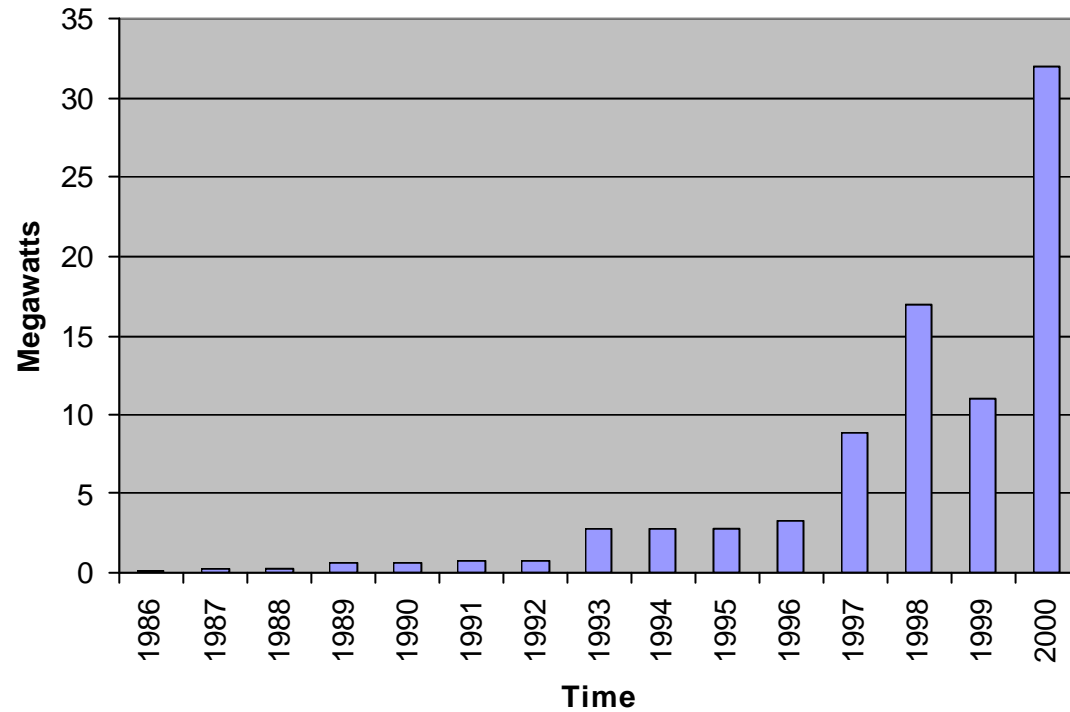


Source: BTM Consult ApS - March 2000

Australia

- **The Renewable Energy Commercialization Program (RECP):** A five year, \$55.6 million competitive grants program designed to spark the development of the renewable energy industry in Australia. Funding for projects leading to the commercialization of innovative renewable energy equipment, technologies, systems and processes.
- **The Renewable Energy Showcase program:** \$10 million, single round competitive grants program. It supports leading edge and strategically important renewable energy projects that: have strong commercial potential, are technically proven and demonstrate the potential for large-scale widespread application
- **Renewable Energy Certificates and Mandated Purchases** Wholesale energy purchasers mandated purchases up to 2% from renewable sources after 1 April 2001. Renewable Energy Certificates may be traded through a market separate to the market for physical energy.

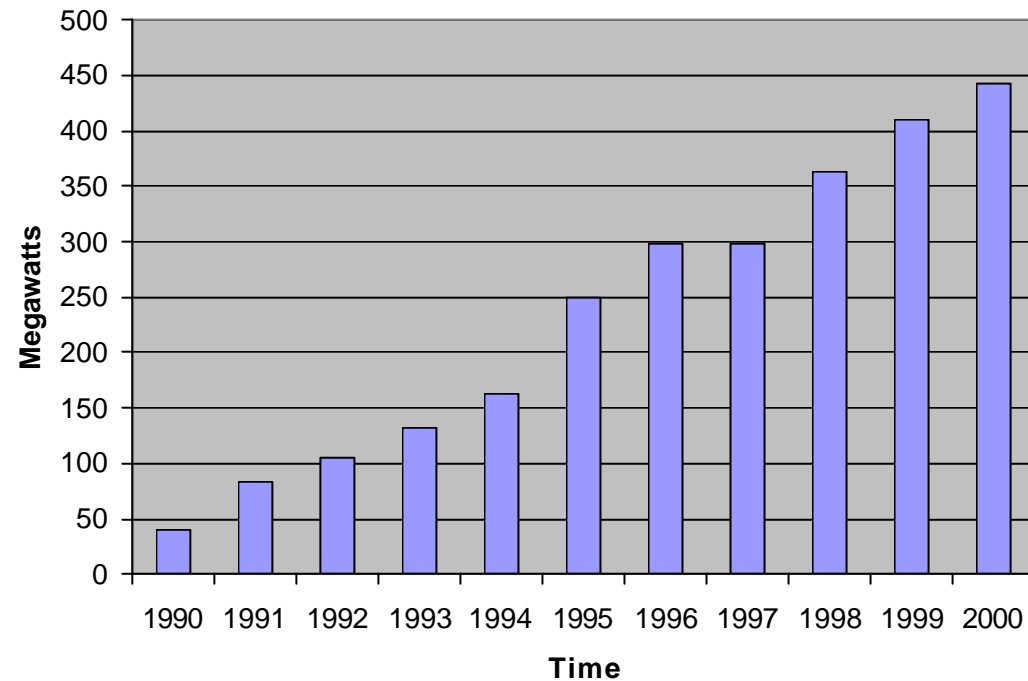
Installed Capacity In Australia 1986-2000



Netherlands

- Wind energy projects of up to 2 MW generating capacity are guaranteed fixed price energy payments of at least 6.0 cents/kWh for 10 years from local distribution utilities.
- Wind projects may also receive a 1.5 - 2.5 cents/kWh "green electricity" payment from distribution utilities. These payments are financed from electricity consumers' voluntary payments for "green electricity" and are subject to negotiation between the wind power developer and the utility
- Wind projects, as well as other renewable energy investments, are eligible to receive low interest debt financing from "Green Funds." Financing from these sources is available at interest rates typically 1.5% below market rates. The Funds are managed by the Central Bank and are raised by issuing calls for private capital. Interest on the invested capital is tax exempt.
- Netherlands' Accelerated Depreciation of Environmental Investments Program (VAMIL). This allows depreciation levels of up to 100% in the first year of installation, at the discretion of the developer.
- A percentage of investments in renewable energy technologies, including wind turbines, may be deducted from taxable profit. Tax deductions range from 42% - 52% of investments extending up to approximately US\$26.0 million.

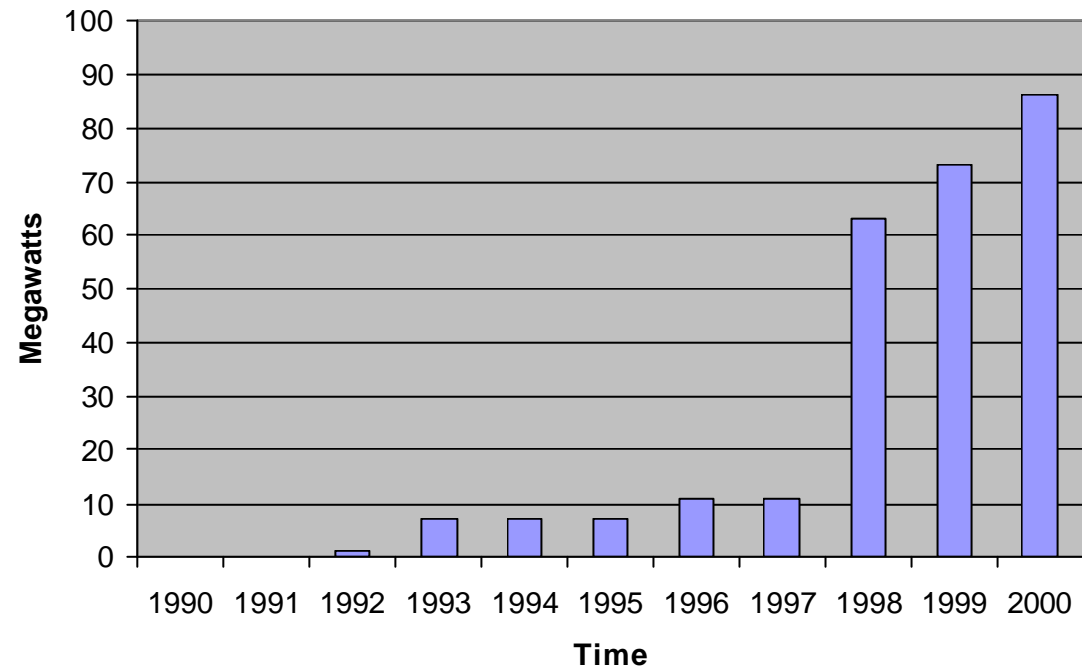
Installed Capacity in The Netherlands 1990-2000



Ireland

- **The Alternative Energy Requirement (AER) Programme:**
Increased installed electricity generation capacity requirements for renewable sources in 1995 from 235 MW to 290 MW and from combined heat and power from 67 MW to 92 MW.
- Tax relief schemes consist of the form of a deduction, for tax purposes, from a company's profits for an investment in new ordinary shares in a qualifying company. Investments in renewables such as hydro, solar, wind and biomass are eligible for tax relief.
- Market restrictions have been removed with the help of the **Electricity Regulation Act, 1999**. Due to this act, all final consumers of electricity, produced from renewable energy, will be issued a supply license. This will result in renewable energy producers, gaining the ability to source domestic and commercial customers to purchase electricity generated.
- 40% of budget gone toward construction costs of large research project without sufficient returns.
- Competition for rights to generate electricity prices for 15 year period.

Installed Capacity In Ireland 1990-2000



Germany

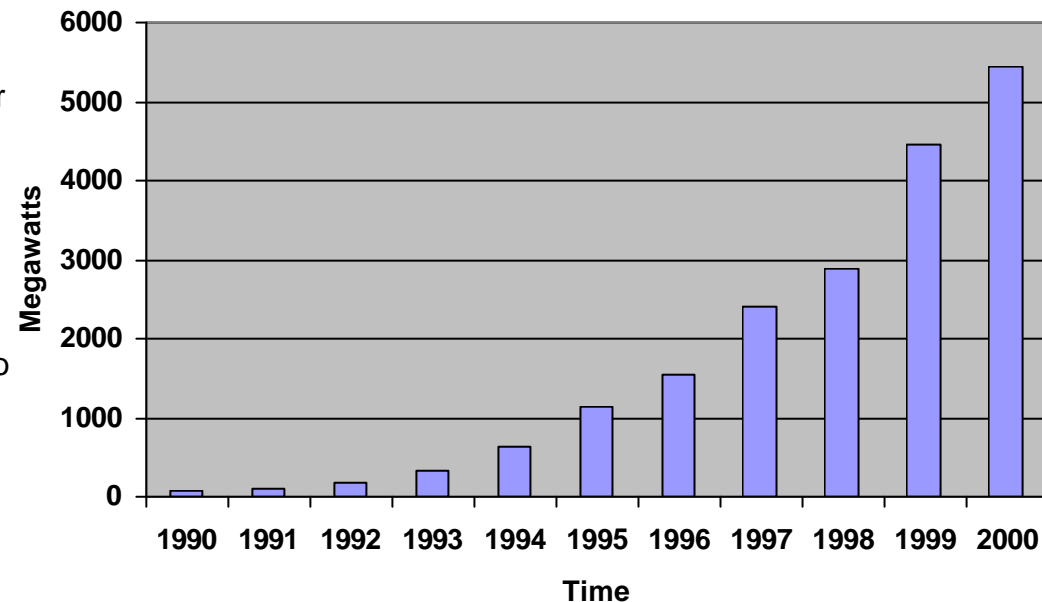
Preferential Pricing (Electricity Feed Law)

- Utilities obliged to purchase at guaranteed prices equal to 90% of retail price.
- 1-2% below the rates of the Capital Markets Fixed rate, made financing easy for wind farms grace period for the first 2 years.

Grants

- **Corporate and personal income tax deduction:** equal to 10% of wind energy investment per year for 10 years.
- **Subsidized loans:** Available from the state-owned Deutsche Ausgleichsbank (DtA) through local commercial banks. Loans cover up to 100% of project costs with interest rates at 1 - 2% below market rates and fixed for the loan period. Ten-year repayment periods are typical and may include up to 5 years grace.
- Financial incentives under the 250 MW Wind Program included energy payments of 3.7 - 4.6 cents/kWh (in addition to those from the local distribution utilities)
- Federal Ministry of Education, Science, Research, and Technology (BMBF) up to 25% of total investment costs (for example on a \$1,200/kW wind power investment, developers would receive 3.7 - 4.6 cents/kWh up to \$300/kW).
- In lieu of these payments, private individuals and farmers could receive direct subsidies of up to \$55,000 for wind power investments.

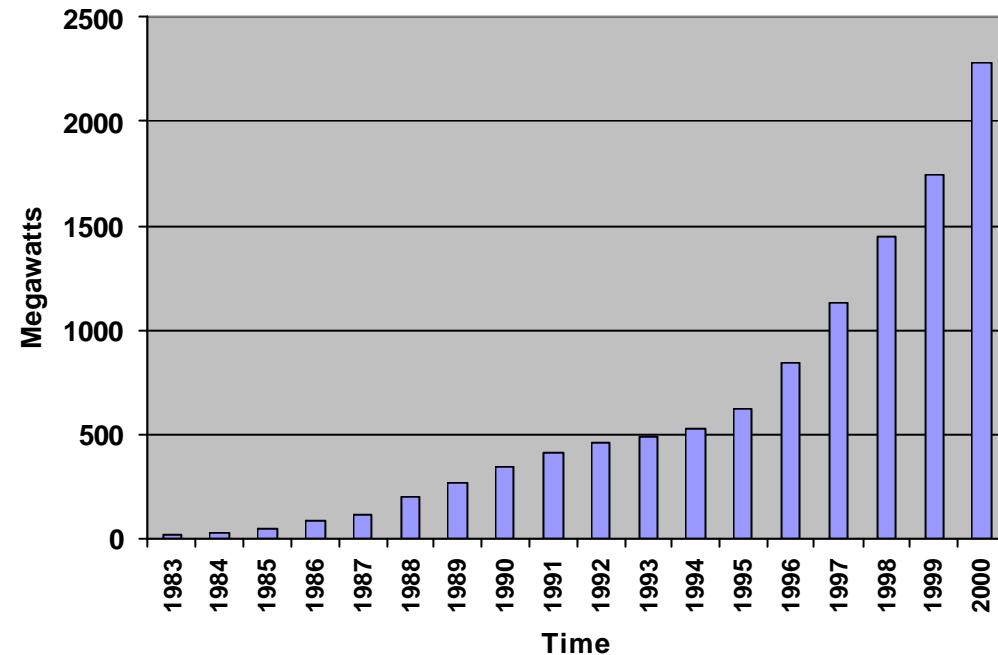
Installed Capacity In Germany 1990-2000



Denmark

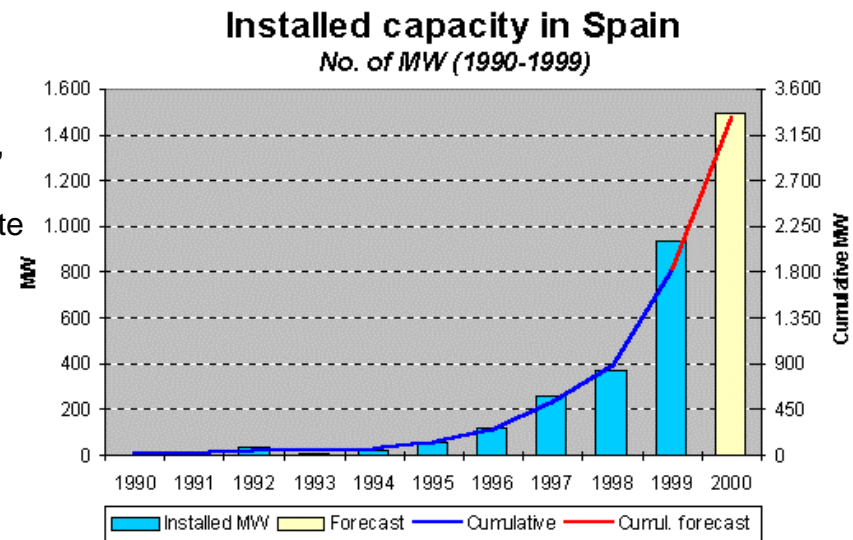
- Individual and private co-operative developers of wind projects selling power to the grid are eligible to receive premium electricity payments of approximately 9.4 cents/kWh calculated as 85% of the utility's generation and transmission costs (5.2 cents/kWh) plus a 4.2 cents/kWh production incentive.
- Utilities are required by law to unconditionally purchase the electricity from wind turbines at these rates. As a result, there are no power purchase contracts between utilities and developers.
- Tax policies on the income generated from selling wind-generated electricity. More specifically, the initial \$450 of income from a wind power project each year and 40% of the remaining income is tax-free. The remainder is considered taxable personal income.
- Must purchase 10% renewable by 2005
- Utilities & industrial consumers receive a reimbursement of the general carbon tax industry exempt
- Soft Loans tied to purchase of equipment.
- Total funding from 76-96 Million
- Cost of grid connection is shared between wind turbine generator owners and utilities.

Installed Capacity in Denmark 1983-2000



Spain

- Market has been growing steadily since 1994
- Reasons for growth
 - Strong incentives for wind developers
 - Regional incentives to spur local investment
 - Willingness from banks to finance projects
- Strong political support, on both a regional and central government level, will continue to promote wind energy
- At the national level, a system similar to the German REFIT, introduced in 1994 and reformulated in 1998
 - ensures a payment equivalent to 80-90% of the retail rate
- Many incentives are coupled to local manufacturing
 - This created a rush from international wind turbine manufacturers to set up JV's with local companies
 - Vestas was the first company to form a joint venture
 - formed a 40% JV with Gamesa in 1994
 - These joint ventures are now starting to bid for projects internationally
- Gamesa (Wind Turbine Manufacturer)
 - has 750 MW of installed capacity in Spain
 - 50% of Spanish market
 - New order for 1400 MW to be installed between 2000-2002
- Spain has a significant wind energy potential, and the land available to develop it.



Source: BTM Consult ApS - March 2000