

Solar Power In Canada:

Powerful, Proven & Practical

So if solar is so great – why are we so far behind?

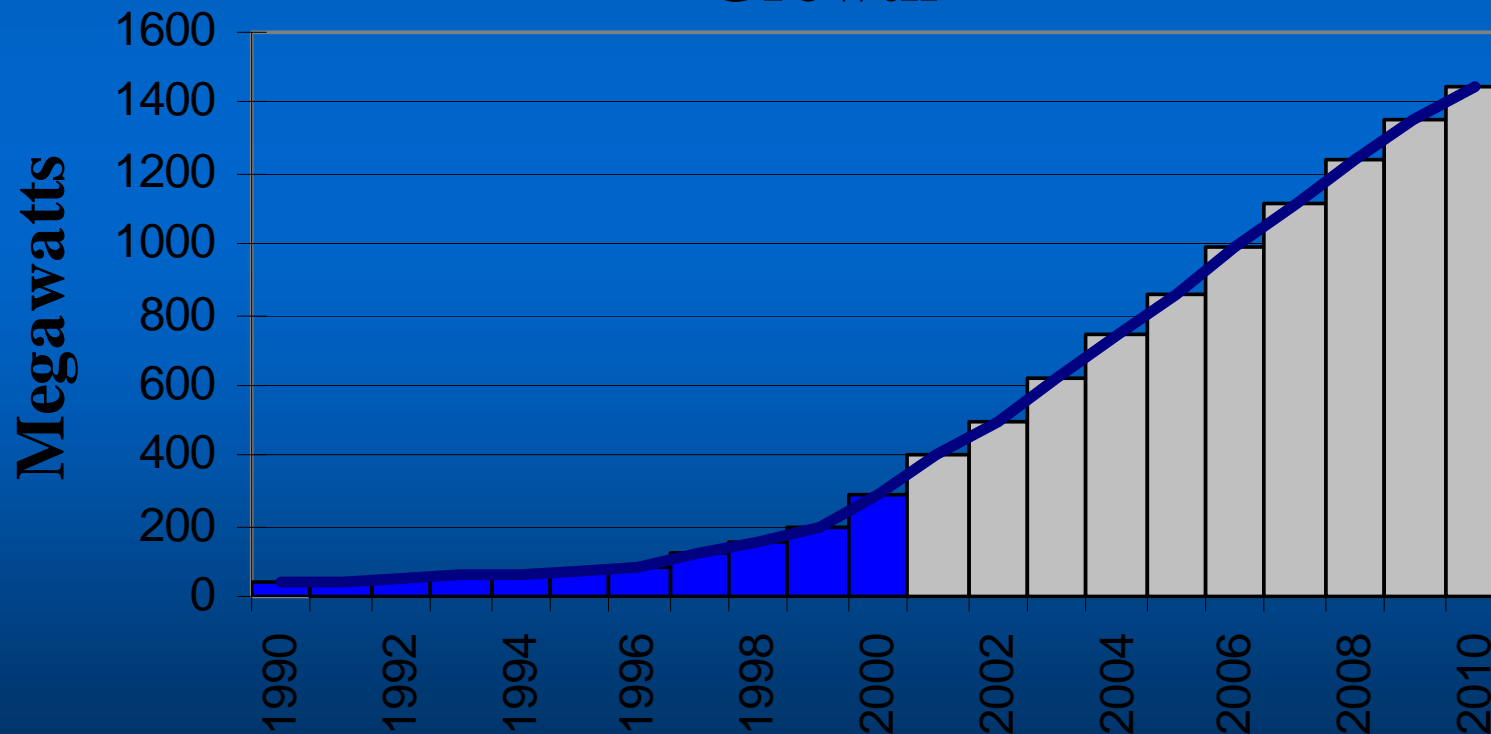


The Canadian Solar Industries
Association

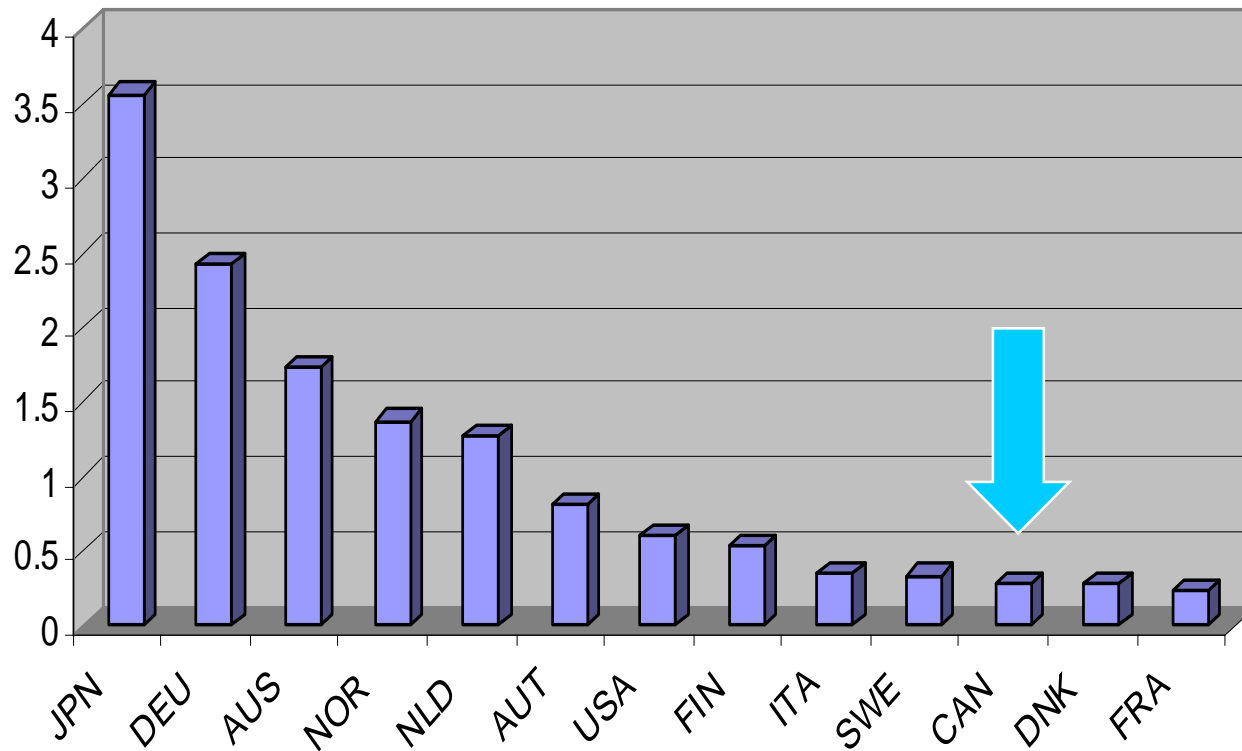
Rob McMonagle

Forecast Worldwide Photovoltaic Market Growth

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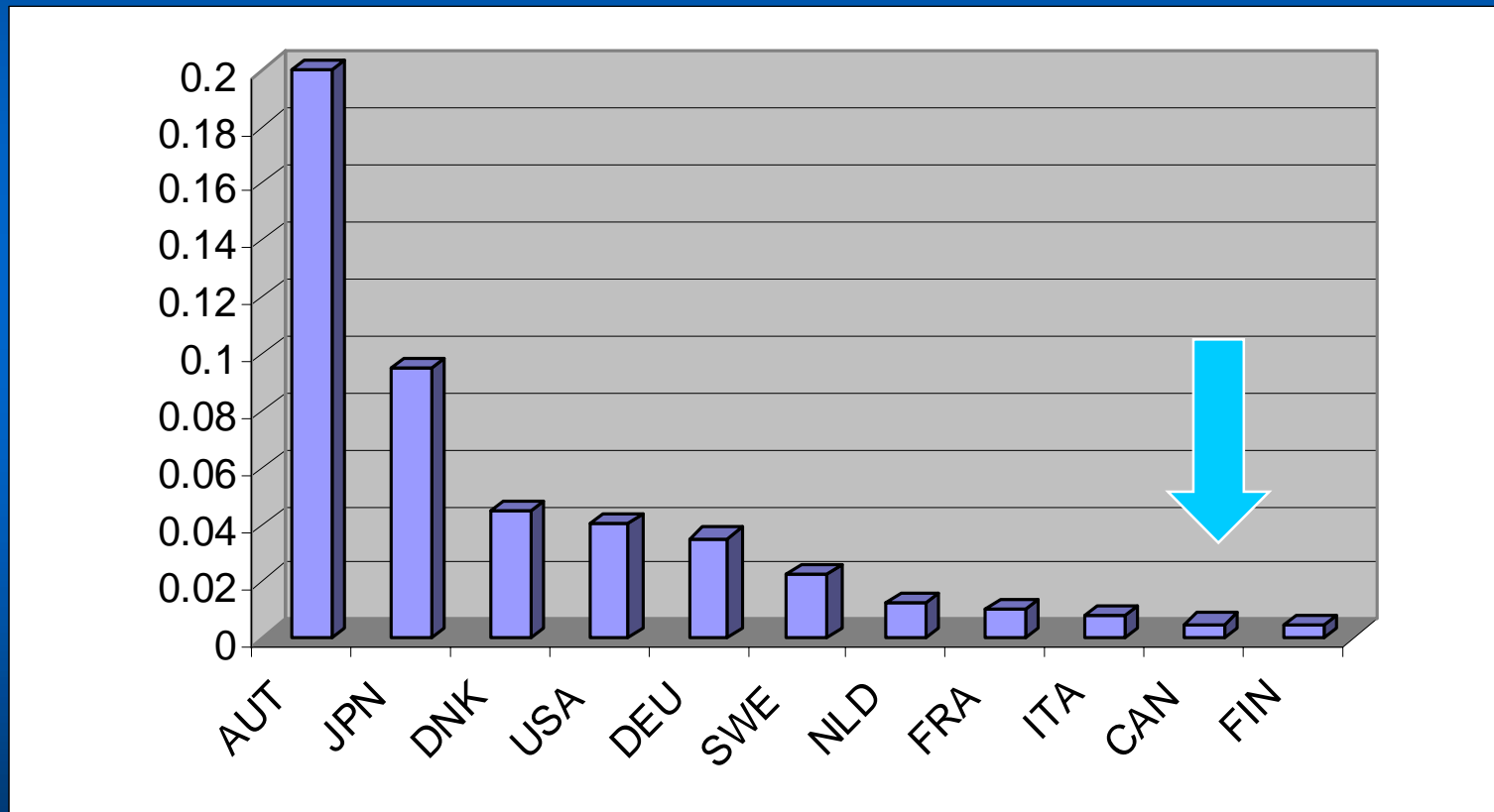


PV Installed Capacity (as of 2001, W/Capita)



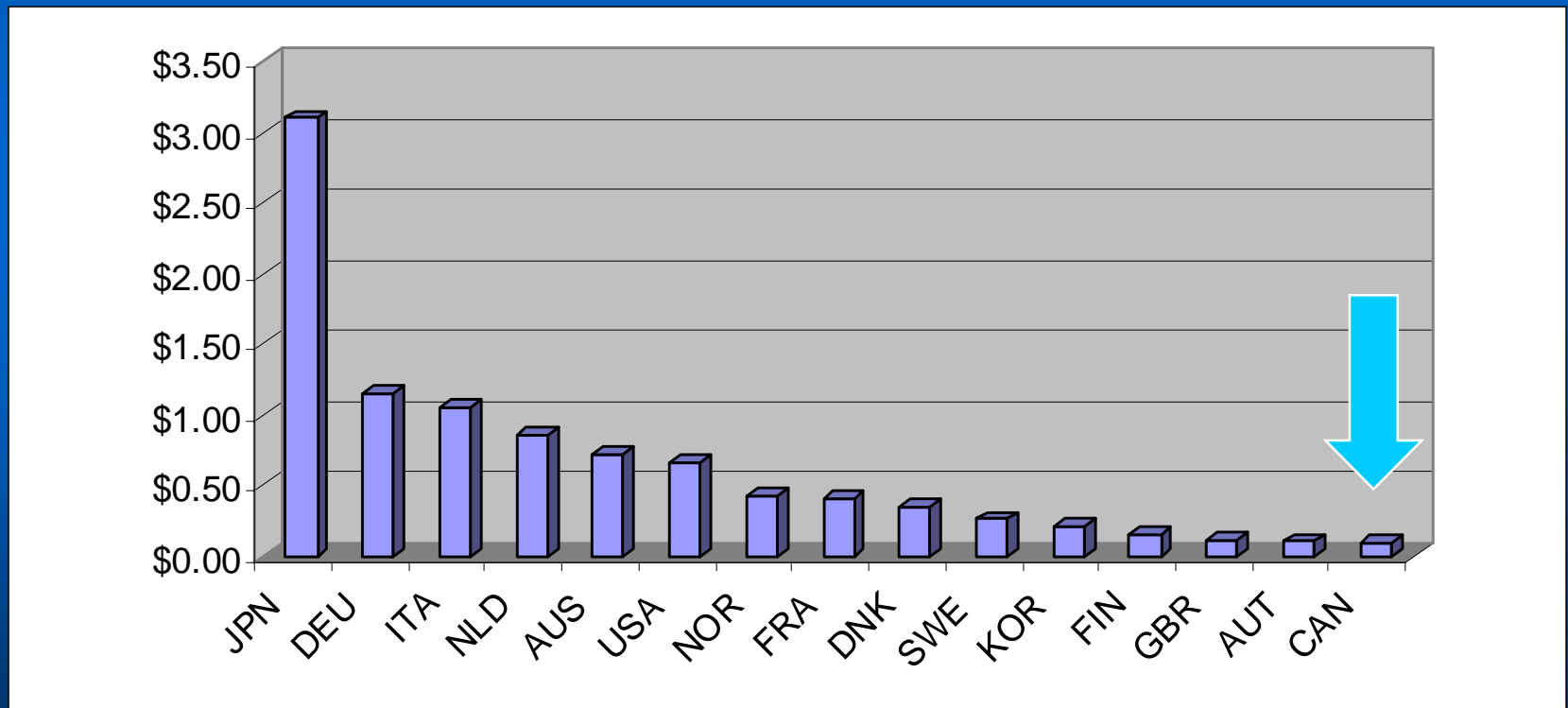
Solar Thermal Installed Capacity

(as of 2000, collectors per capita)



International Solar (PV) Funding

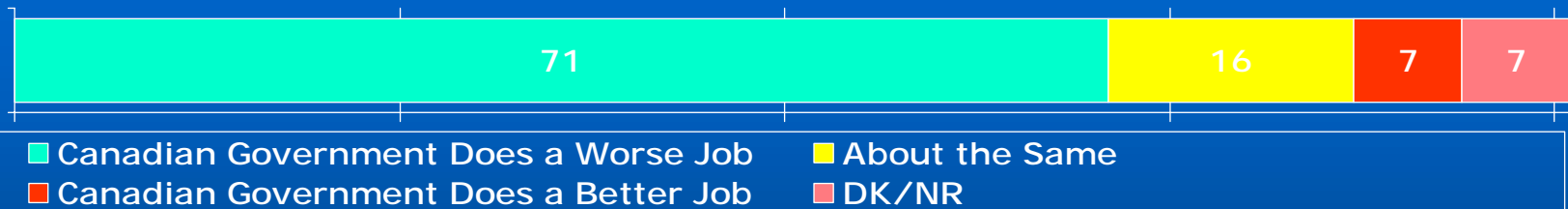
- PV Public Budgets (2001) for R&D, Demonstration, & Market Stimulation - \$CAN per capita



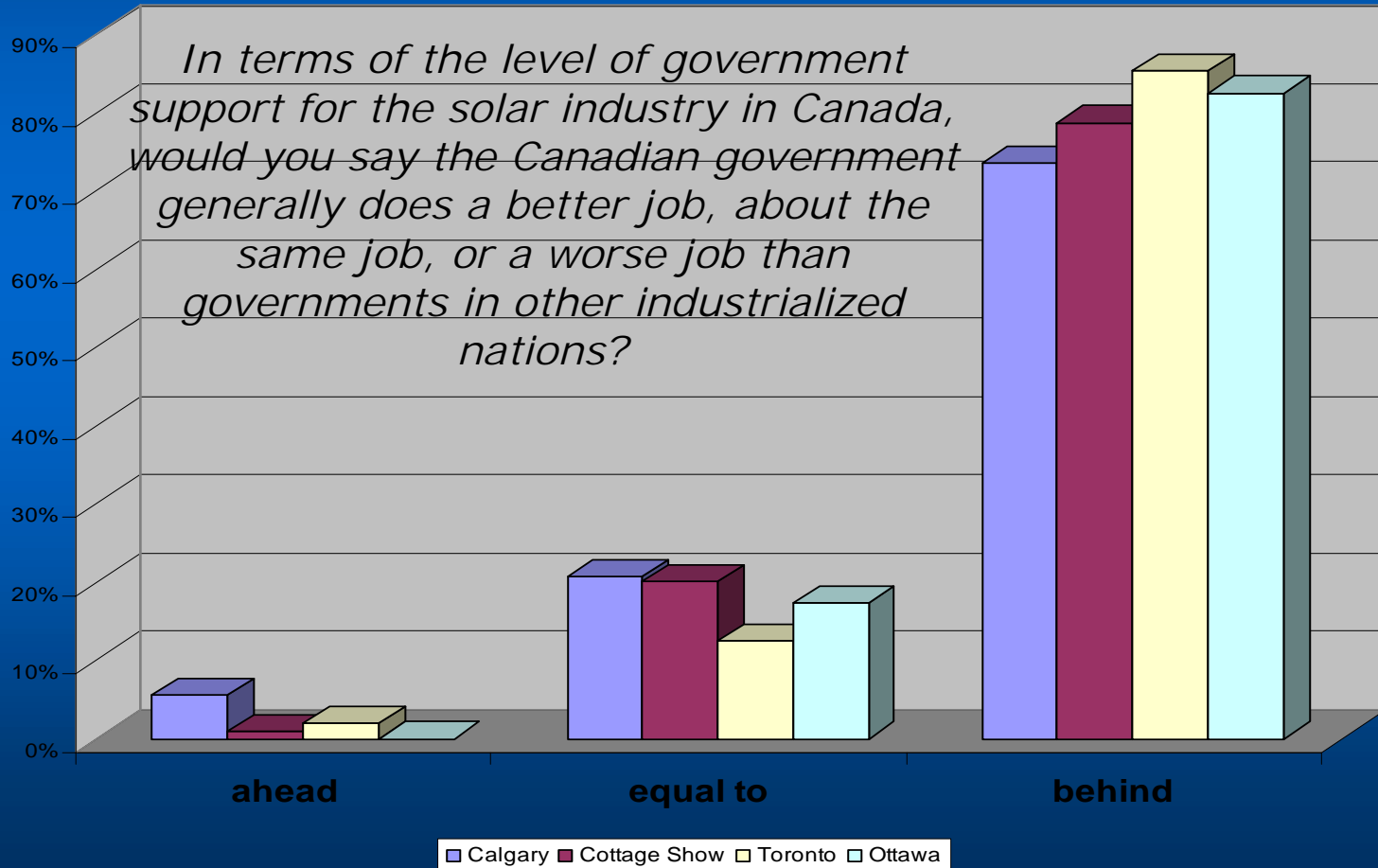
Canada vs. the World – Industries Perception



In terms of the level of government support for the solar industry in Canada, would you say the Canadian government generally does a better job, about the same job, or a worse job than governments in other industrialized nations?



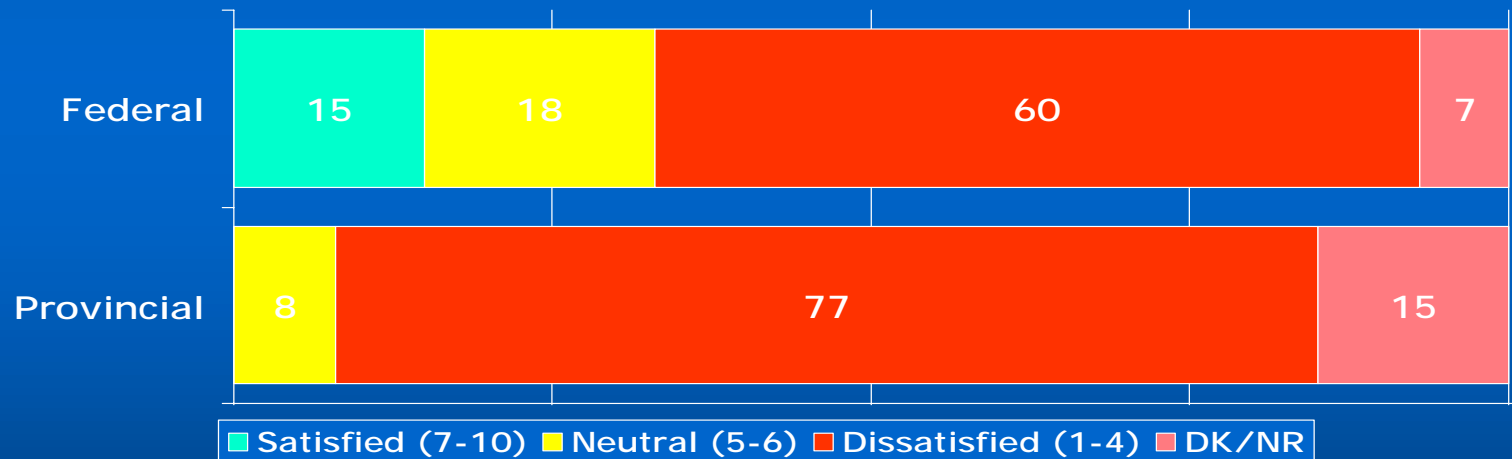
Canada vs. the World – Public Perception



Government Support



Overall, how satisfied are you with the level of support provided for the solar industry by the federal government / your provincial government?



But first some myth...

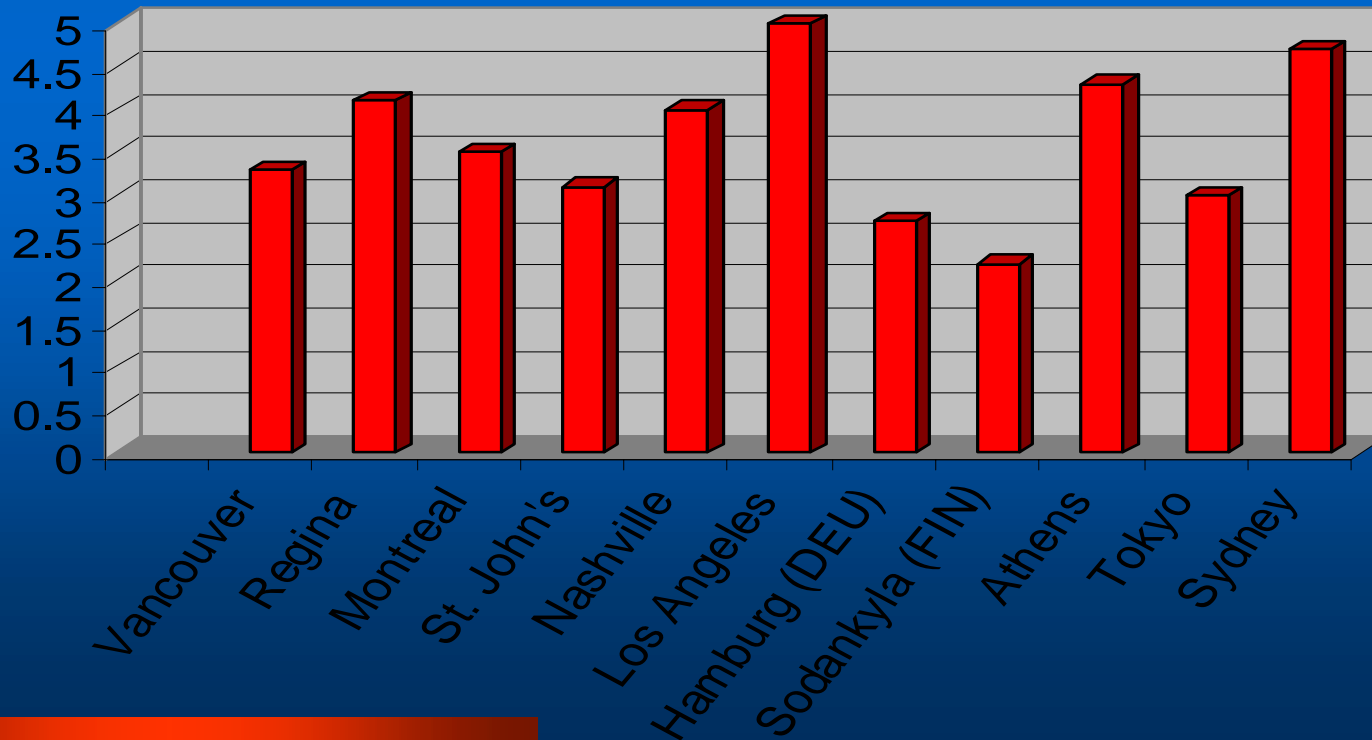
Challenge #1

“#1 There is not enough sun in Canada”



We have more solar energy than many of the countries that are the solar leaders

Solar Energy
(yearly average pk hrs/day)



"#2: Solar is still unproven"



False.

Solar technology is actually older than fossil fuel technology. The ancient Greeks used passive solar principles as early as 1500 BC. There were solar hot water heating systems installed in North America as early as 1892.

"#3: Solar doesn't yet supply much energy on a national scale"



- Energy statistics tend to be biased: e.g.. they include energy used in drying food by gas fired driers, but ignore energy used in drying food in the sun.
- Passive solar already supplies a minimum of 15% of space heating load for most homes. (not reported)
- Solar daylighting accounts for 50% of lighting needs already. (not reported)

Green Power, Green Heat or Green Energy?



- **Green heat is important but often forgotten in the discussion**
- **Load displacement is just as important as new generation**
- **Need to focus on more than just PV – all solar technologies are part of the solution**

Three technologies – one energy source



- **Passive Solar**
- **Solar Thermal**
- **Solar Electricity – Photovoltaics (PV)**

The Power of Solar



For each system installed...

	Energy Produced (MWH/yr)	CO₂ Reductions (tonnes)	Energy Savings	Payback (years)
Swimming Pool	9.0 – 14.0	1.4 – 4.8	50 – 100%	3 - 5
DHW Heating	1.7 – 3.2	0.4 – 3.5	30 – 60%	5 - 9
Space Heating	3.5 – 5.4	0.9 – 6.6	5 – 10%	1 - 8
Passive Home	3.0 – 15.5	0.9 – 7.3	5 – 30%	1 – 10
Off Grid PV	1 watt = 1 kWh/yr	high	50 – 100%	<1
Grid Tied PV	1.7 – 2.5	0.7 – 2.5	15 – 25%	>25

Solar Pool Heating (an example)

- 600,000 pools in Canada
- Most solar systems are <\$3,000
- One-tonne challenge?
What would a \$1,000 grant do for solar?



Solar Collector Area	50% of pool area
Energy Savings	9 – 14 Mwh / year
Payback Period	3 - 5 years
CO₂ Savings	1.4 – 4.8 tonnes / year

The words stay the same...



“It is in Canada’s national interest to encourage the use of solar energy. It is in Canada’s national interest to have a Canadian solar industry”

Senator Royce Frith, speaking on behalf of the Canadian Government – November, 1981

But the problem remains...



“It is in the complete absence of policies that the Canadian solar industry is expected to survive and grow,”

Adrian Gatrill, CanSIA Executive Director, September 1983

Challenges...



*So if solar is so great -
why are we so far behind?*

Challenge #1:



Overcoming the myths

Challenge #2:

Lack of Understanding - solar is a different scale from all other energy sources

- Solar is not large and centralized
- Solar is small and distributed
- Solar contributes at a different scale to the energy supply – it is local and independently controlled
- Conventional planning and government decision making is not equipped to deal with the issues of distributed energy supply

Challenge #3: Accounting for the costs

- Solar is consumer based power generation – the consumer can not compete or get the financing that utilities get to build a power plants
- Society pays the costs of large power plants
 - Health costs, nuclear power plant decommissioning, site cleanup
- Yet the consumer has to pay the full cost of solar on their home

***How can we make it more equitable –
levelize the playing field?***

Challenge #2:



There is a lack of coordination

- **A Plan**
 - Coordination within governments is absent
 - Coordination between governments is absent
 - Contact with industry is absent
 - There is a lack of staff dedicated to the solar portfolio
 - Issues are policy and not technical
- **Solar is only part of the solution**
 - Need coordination with all renewables to maximize the benefit

Challenge #4:

There is no vision

- **Solar champions**
 - The political will
- **Targets & goals**
 - “100,000 solar roofs” declaration in Ontario
- **Short term programs will not work**
 - A commitment to the long haul is needed

Where do we want to go?

A National Renewable Energy Plan is needed

Challenges:



Some examples that the industry face

#1: Can not get a building permit for a solar DHW

- CSA standard for solar Domestic Hot Water systems exists
- No laboratory in Canada has the equipment to test to the standard
- Industry is too small to afford to pay the costs of upgrading labs
- Individuals in Municipal Building Departments have to make a decision with no information
- Increases the difficulty and complexity for installing a solar system

City of Ottawa is currently refusing to issue building permits for solar hot water systems

Challenges:

Some examples that the industry face

#2: Individuals in Canada cannot put their excess solar produced electricity into the grid

- No standard approval process in place (Net Billing)
- No standard connection requirement in place – those in place (or proposed) are onerous (i.e. \$2,000 for meters and disconnects where the savings might be \$50/yr)
- No direction from government
- Sometime government policy is counterproductive – I.e. Ontario deregulation killed Toronto Hydro's and Ontario Hydro's Net Billing programs

Individuals that are doing it are "going gorilla."

Is solar in the future for Canada?

Only if governments and industry and individuals work together today.

CanSIA Conference

Tipping the Scale Towards Solar –

The One Tonne Challenge

November 14-16, 2003

Ottawa

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