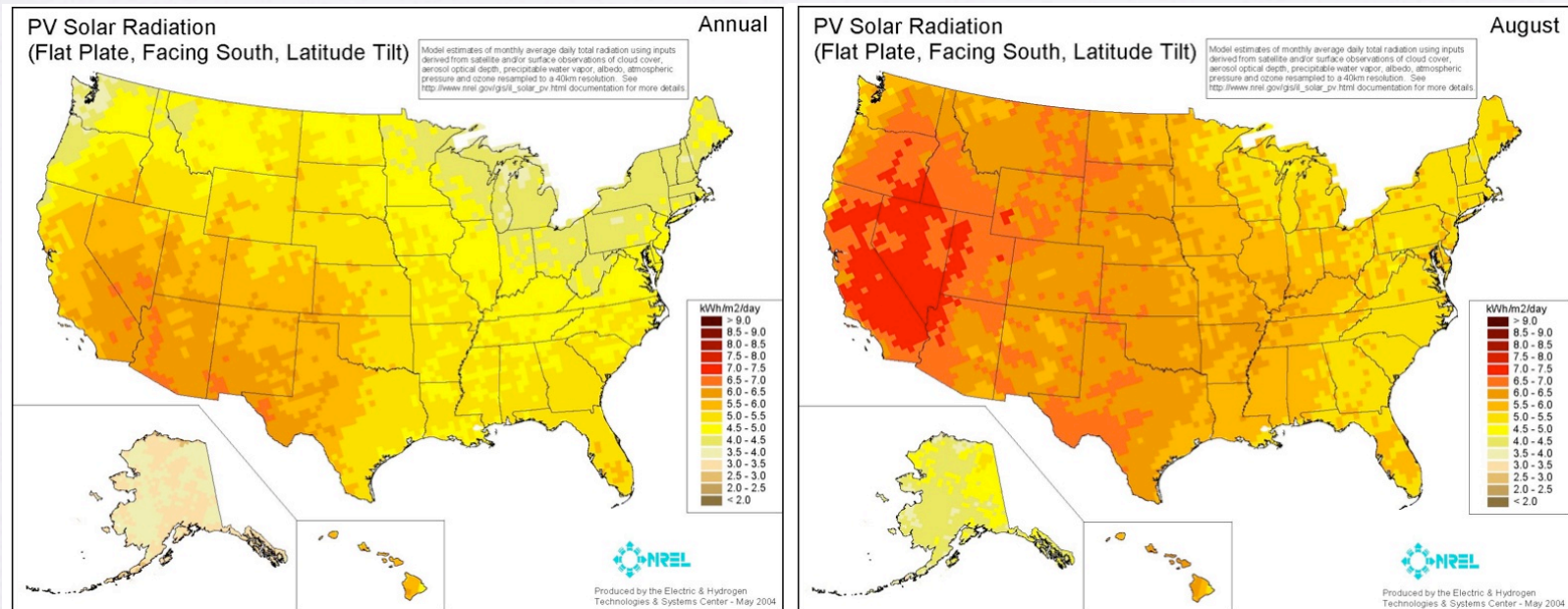


Toronto Solar City

A Toronto Atmospheric Fund Initiative

Philip Jessup
Executive Director

Solar Insolation

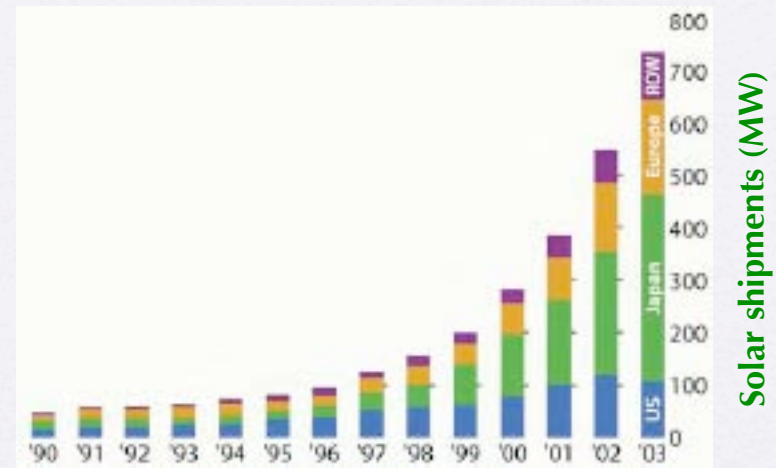


Source: NREL

kWh/m³ a function of solar irradiance, cloud cover, aerosols, and atmospheric water vapour
Toronto receives about 5.3 kWh/m³ in August, more than Miami

Growth of Solar PV

- German 72¢ feed-in tariff in 2001+ low cost loans
- Japan 50% cash subsidy increased solar rooftops to 100,000 & reduced costs 50%
- Ontario 42¢ standard offer contract (SOC) over 20 years = half value of German and Japanese incentives



California Plan

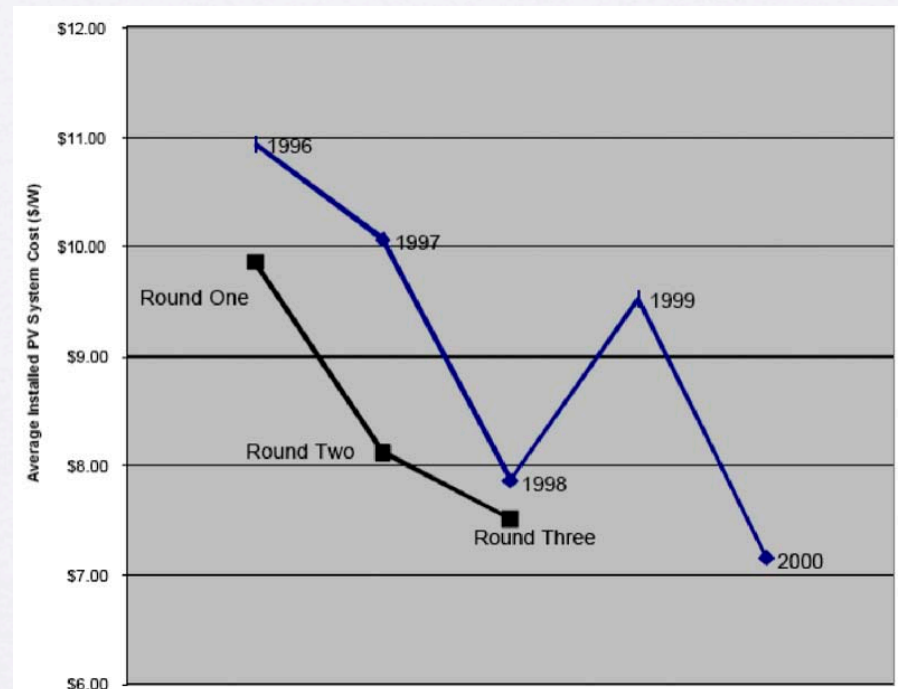
	2005	2007	2010	2014
Number of Systems ¹	3,200	145,000	470,000	1,070,000
Capacity of Systems ¹	75 MW	325 MW	1060 MW	2,410 MW
Peak Demand Reduction ²	45 MW	210 MW	690 MW	1,570 MW
Energy Generated ³	115,000 MWh/yr	515,000 MWh/yr	1,675,000 MWh/yr	3,800,000 MWh/yr
Greenhouse/ Harmful Gasses Avoided (per year) ⁴	46,000 Tons CO ₂ 57 Tons NOx 34 Tons SO ₂	205,000 Tons CO ₂ 257 Tons NOx 155 Tons SO ₂	675,000 Tons CO ₂ 837 Tons NOx 502 Tons SO ₂	1,500,000 Tons CO ₂ 1,900 Tons NOx 1,140 Tons SO ₂
Cars Removed ⁴	8,000	32,000	118,000	267,000
Jobs Created ⁵	4,000	5,800	6,700	8,100
Sales Tax Revenue ⁶	\$23 million	\$95 million	\$295 million	\$635 million
Investment by End-Users ⁶	\$400 million	\$1,675 million	\$5,075 million	\$11,000 million

Courtesy: California Solar Industries Association

Prices Are Declining

- Prices of PV dropped 35%, 1996 - 2000 (U.S.)
- Module costs dropped faster than system costs
- System cost was not related to installation size in study of 23 projects
- Module costs are rising due to silicon shortage

U.S. PV Installed Costs, 1996-2000



Source: Solar Electric Power Association TEAM evaluation)

Polysilicon Shortage



Courtesy: Mitsubishi Polysilicon

- 65% polysilicon for ICs
- Solar companies purchase off-spec lower grade material but demand now exceeds supply
- Down cycle for ICs in 2001 spooked polysilicon manufacturers
- Industry won't expand without long-term purchase agreements

Polysilicon Capacity

Global Polysilicon Capacity Forecast

Company	2004 Capacity	2005 Capacity	2006 Capacity	2007 Capacity	2008 Capacity
Hemlock	7,000	7,400	10,000	10,000	10,000
Tokuyama	4,800	5,200	5,400	5,400	8,400
Wacker	5,000	5,000	5,500	6,500	8,500
REC (ASiMI)	2,600	3,000	3,300	3,300	3,300
REC (SGS)	2,200	2,400	2,700	3,900	7,400
MEMC (Pasadena, TX)	2,700	2,700	2,700	2,700	2,700
MEMC (Italy)	1,000	1,000	1,000	1,000	1,000
Mitsubishi Materials	1,600	1,600	1,600	1,600	1,600
Mitsubishi Polysilicon	1,200	1,200	1,200	1,200	1,200
Sumitomo Titanium	700	700	700	700	700
Sichuan Xinguang	-	-	300	1,250	1,250
JSSI	-	-	100	500	1,000
New Industry Consortium (expected)	-	-	-	-	1,500
Total	28,800	30,200	34,500	38,050	48,550

Source: Piper Jaffay Equity Research (2005)

25% increase in capacity expected in 2008

Does PV Compete?

Combined cycle gas	3 - 5 cents/kWh
Wind	4 - 7 cents/kWh
Biomass gasification	7 - 9 cents/kWh
Solar PV central station	20 - 30 cents/kWh
Solar PV distributed	20 - 50 cents/kWh

Source: SolarBuzz

Why Solar in Toronto?

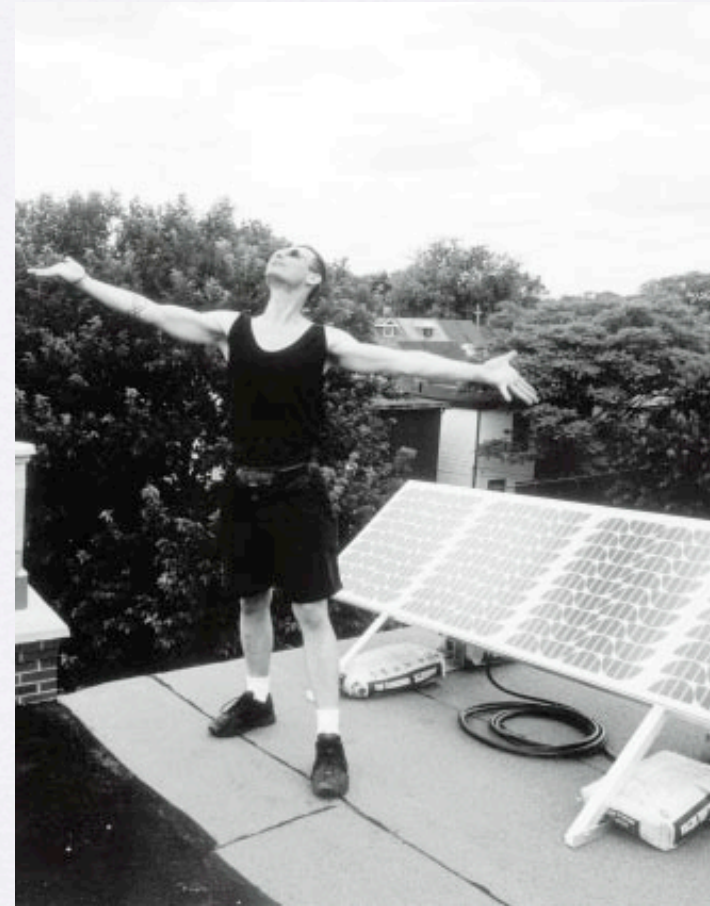
- Solar PV maximum output coincident with summer system peak load
- City owns significant roof and parking acreage
- With Ontario SOC & low interest loans, PV will pay back in under 20 years
- Revenue Canada Class 43.1 & 43.2 will help



Courtesy: Evergreen Solar)

What is Solar City?

- Partnership to accelerate solar PV and other solar technologies
- TAF funding envelope of \$1 - \$2 M to City over 4 years
- Community grants to stimulate residential solar rooftop program
- Interest buy down? — \$1M will buy 250 basis points over 4 years for \$20M



Solar City Key Aims

- Establish Toronto as a world leader in deployment of solar technologies, especially PV
- Establish a vertically integrated PV program with financing, installation, & operation under partners
- Create standardized systems to reduce design & engineering costs & simplify procurement
- Develop financing & business model that incorporates both provincial SOC and federal 43.1 & 43.2 incentives