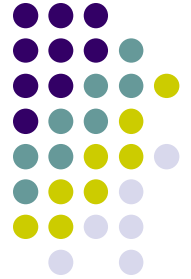


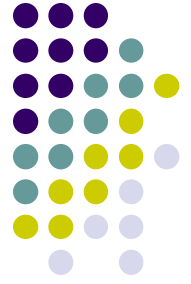
# Solar Working Group

## Activities and request for input & ideas



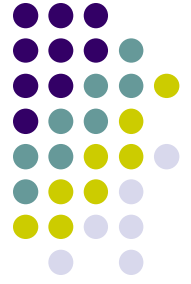
**Scott Bouchie, City of Mesa,**  
Development and Sustainability  
Deputy Director - Environmental and Sustainability

**Anthony Floyd, City of Scottsdale,**  
AIA, LEED AP  
Green Building Program Manager



# Solar Subcommittee

- Solar selected from original brainstorm list
- Initial meeting
  - Facilitating solar use in city/university facilities
  - Identifying codes & standards
  - Conducting Applied Research



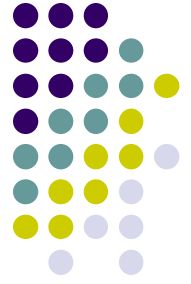
# How Do We Pay For It?

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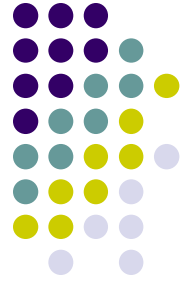
# Solar Financing

- Created another group to discuss solar financing
- First Meeting February 3
  - Mesa, Chandler, Scottsdale, Phoenix, ASU
  - Current Projects
  - Types of Financing
  - Goals for the Group



# Solar Projects

- Remote Locations – Necessity
  - Bus Stops, Remote Lighting
  - Fiscally Driven
- Current Projects
  - Significant amounts of power
- Future Projects



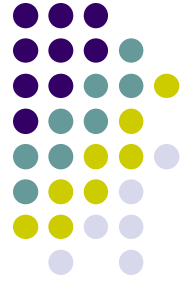
# Financing

- Types of Financing
  - Ownership
  - Leases
  - Power Purchase Agreements
- Tax Incentives
  - Tax Credits
  - Depreciation



# Goals of Group

- Identify other types of Financing
  - CREBs
  - Tax-exempt financing
  - Private vs. Public Ownership
  - New Market Tax Credits
- Stimulus Money
- Regional Solar



# Goals of Group

- Develop Model PPA
- Identify Key Constraints
- Education on Terminology
  - kW vs. kWh
  - Photovoltaic vs. CPV vs. Solar Thermal
- Networking
- Solar Advocacy



# Next Steps

- Recruit New Members
- Schedule next meeting



# Solar Permitting Survey



- ✓ **9 Valley entities participated including Glendale, Scottsdale, Peoria, Apache Junction, Chandler, Maricopa County, Phoenix, Mesa and El Mirage**
  
- ✓ **Solar Permitting Levels**
  - **Highest in Phoenix with around 20 permits per month**
  - **Peoria second highest with around 14 permits issued per month**
  - **Vast majority are for residential**
  - **Very limited solar commercial permitting occurring**
  
- ✓ **Do entities utilize a standard application for solar permitting?**
  - **Most local governments do not due to low levels of volume in this area**
  - **Mesa exempted solar from permit requirements several years ago with the exception of commercial installations**

# Solar Permitting Survey



## ✓ Training Needs

- All entities indicated that could use staff training on solar, both PV and thermal

## ✓ Increase in solar permitting?

- Yes-All entities indicated that solar permitting is increasing
- Some noted the increase is limited to residential

## ✓ Solar design guidelines for panels on the roof?

- A variety of responses
- Some use existing City design guidelines (Peoria, Mesa, Apache, Junction)
- Some allow package installs only (Chandler)
- Some use Maricopa Association of Governments (MAG) guidelines (El Mirage)



# Solar Permitting Survey

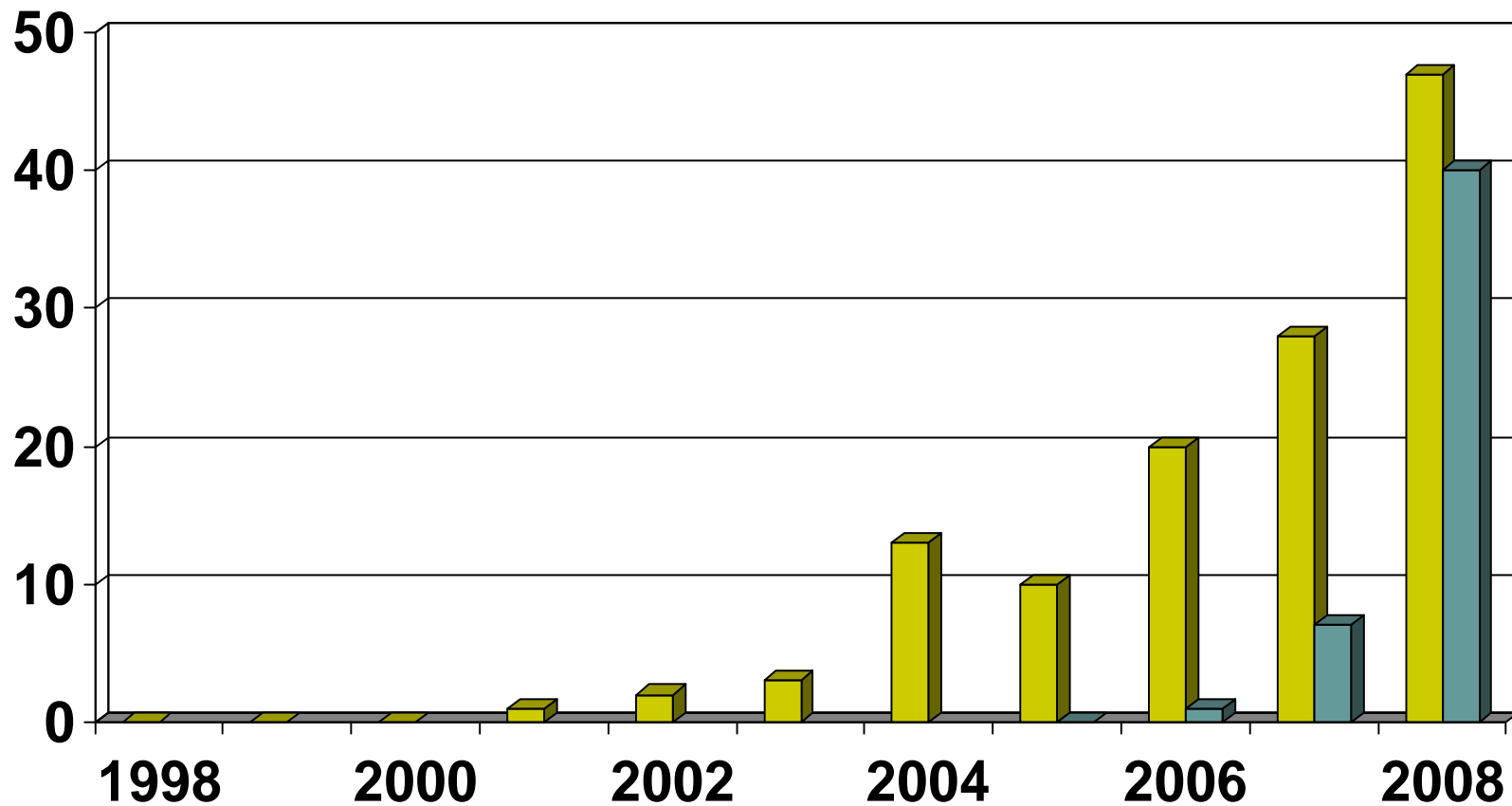
## ✓ Over the Counter Permits?

- Yes-3 entities, specifically for residential
- No-4 entities
- Others indicated solar hot water is over the counter, but PV takes 2-3 days for review-again this is in regards to residential

## ✓ Require Solar Plans to be Sealed by an Engineer?

- Mixed response, some do, some don't
- Commercial applications-majority require both electrical and structural seal
- For solar hot water or pool panels, most do not require sealed plans

# Solar Electric (PV) and Hot Water Permits Scottsdale Data



# Solar Permits are Up

## Scottsdale Data

### Solar Electric (PV)

Year	2001	2002	2003	2004	2005	2006	2007	2008
No. of Permits	1	2	3	13	10	20	28	47

### Solar Hot Water

Year	2001	2002	2003	2004	2005	2006	2007	2008
No. of Permits	TBD	TBD	TBD	TBD	0	1	7	40

# Solar Panels and Building Design



How can we address the incompatible placement of Solar Panels in the context of Building Design?

# East and West Facing Pitched Roofs can be problematic



Without esthetic consideration of solar panel placement requiring southern exposure, panels could look like this lunar landing.





City of Scottsdale  
**Green Building Program**  
 "Sustainable Building in the Sonoran Desert"

**SOLAR PANEL PLACEMENT DESIGN GUIDELINES  
 FOR SINGLE FAMILY HOMES**

The following guidelines are to be used in the design and placement of solar panels (photovoltaic and solar thermal systems) on pitched and flat roofs of single-family dwellings for the purpose of compatible design. With a little foresight and planning, a solar system can be effectively integrated into the design of new and existing roofs. Those projects which comply with the design guidelines qualify for over the counter plan review. All other proposals will be required to be submitted for plan review.

**A. South Facing Pitched Roofs (within 45° east or west of due south)**

- 1) Solar panels should be low profile and parallel with the plane of the pitched roof.
- 2) Top of the panels should not exceed 8 inches above the adjacent finish roofing surface (e.g. - tile, shingles). Panels should not project above the roof ridge line.
- 3) Placement of panels should be uniform. Consider the panels as part of the overall roof configuration. Match the shape and proportions of the array with the shape and proportions of the roof.
- 4) Color of panel frames and support structure should be neutral and compatible with roof surface color (exposed frames and components should have a non-reflective surface).



- + Per guidelines  
 - Not per guidelines



- Solar Panel Placement Design Guidelines
  - South Facing Pitched Roofs
  - North and East/West Facing Pitched Roofs
  - Flat Roofs

