

# *San Carlos Apache Tribe*

## **Energy Organization Analysis**



Prepared for:  
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## **EXECUTIVE SUMMARY**

The San Carlos Apache Tribe (SCAT) was awarded \$164,000 in late-2011 by the U.S. Department of Energy (U.S. DOE) Tribal Energy Program's "First Steps Toward Developing Renewable Energy and Energy Efficiency on Tribal Lands" Grant Program. This grant funded:

- The analysis and selection of preferred form(s) of tribal energy organization (this Energy Organization Analysis, hereinafter referred to as "EOA").
- Start-up staffing and other costs associated with the Phase 1 SCAT energy organization.
- An intern program.
- Staff training.
- Tribal outreach and workshops regarding the new organization and SCAT energy programs and projects, including two annual tribal energy summits (2011 and 2012).

The establishment of a tribal energy organization is consistent the SCAT's 2008 Tribal Strategic Plan, as recently amended in 2011. The SCAT's 2008/2011 Tribal Strategic Plan references some energy policies and plans for the Reservation. Proposed energy project development strategies included electrical transmission upgrades and hydroelectric power generation, and solar and biomass renewable energy projects. These two strategic plans also identified energy-based business projects as a key economic development undertaking. The SCAT's 2011 Energy Strategy and Program (developed using U.S. DOE EECBG funding) also suggested several goals and benchmarks consistent with establishment of a SCAT energy organization.

Whether the SCAT plans to play a passive or active role in energy program or project development, the different types of governmental and/or business approaches that are available should be carefully considered. The type of energy organization that may be formed or adopted can and will have multiple and complex implications for organization responsibilities, sovereignty, on-Reservation economic development and job creation, project development and ownership, program development and management, legal liability and limitations, financing and revenues, and many other issues.

### **The possible forms of energy organization considered by this EOA are:**

**Ad-Hoc:** This approach involves no specific and ongoing tribal energy organization at all. Under this model, tribal energy projects and programs, and proposals for privately-sponsored energy projects on the Reservation, would be handled on a case-by-case basis and assigned ad-hoc to the elected and appointed leadership, different tribal departments or committees, and/or individual SCAT staff.

**Government Office or Department:** A "start-up" or even ongoing solution to tribal energy management may be to simply continue to place energy staff - such as the current energy auditors, and the "energy organization coordinator" funded by the U.S. DOE First Steps grant - in the Planning and Economic Development Department. A "next step" to the current SCAT approach would be creation of a stand-alone tribal energy office or department.

**Utility Authority:** The utility authority is simply a specific type of tribal enterprise. For tribes desiring to directly provide electric power (and/or natural gas) to local customers, whether purchased on wholesale markets or generated on the Reservation, creation of a tribal utility, or expansion of the charter of an existing operation (for example, the SCAT telecommunications utility) may be an effective option. A

SCAT energy utility could significantly facilitate the development and ownership of power generation facilities, improvements to transmission infrastructure, the provision of reasonably priced retail power to SCAT customers, and the sale of locally-generated power back into a regional power grid. The utility could also evolve into a major employer providing specialized training and skills to SCAT members.

**Joint Ventures:** Joint ventures work most effectively for capital projects and/or for distinct single purpose operations. Joint ventures would require the creation of a joint-ownership business partnership between SCAT and a non-SCAT entity. Joint venture partners may have access to tax incentives and financial markets that are unavailable to the SCAT government or enterprises.

**Energy Service Company (ESCO):** ESCOs typically focus on delivering energy efficiency improvements, but can also manage distributed power or remote off-grid energy services. ESCOs provide energy efficiency improvements to residential, commercial, or industrial customers, and collect revenue based on the monthly cost savings from such improvements.

**Cooperatives:** Cooperatives are membership organizations, usually formed to deliver services to rural areas and remote customers where other options are not available. Electric cooperatives are seldom in the power generation business. Cooperatives usually buy from other power companies and utilities, and distribute “retail” power to members. Cooperatives do however usually own and operate the infrastructure that delivers the power to members (transmission lines and substations).

**The preceding six energy organization options were evaluated based the following five broad criteria:**

1. Supports Tribal Sovereignty and Self-sufficiency
2. Supports Economic Development and Financial Stability
3. Protects Cultural and Social Values
4. Preserves Environmental Resources
5. Consistent with the 2011 SCAT Energy Strategy

**The following phased approach is recommended as an outcome of the foregoing analysis** (see EOA pp. 19-25 and Appendix A for details on the analysis methodology and outcomes):

**Phase 1: Interim Energy Program Administration:** For the balance of 2012 and potentially into 2013, SCAT energy programs and projects should continue to be housed in the Planning and Economic Development Department, and supported by current Planning management and administrative staff.

**Phase 2: Formation of Separate Energy Office:** In late-2012, begin steps to establish a SCATenergy office managed separately from other tribal government departments and offices, with the goal of funding implementation of this step within the FY2013 or FY2014 tribal budget.

**Phase 3: Formation of Tribal Energy Utility:** Within the next three to five years, subject to the pace with which the SCAT approaches the development of capital-intensive energy generation projects and energy transmission and delivery initiatives, the SCAT should form a tribal enterprise energy utility.

## **BACKGROUND and CONTEXT**

The San Carlos Apache Tribe (SCAT) was awarded \$164,000 in 2011 by the U.S. Department of Energy (U.S. DOE) Tribal Energy Program's "First Steps Toward Developing Renewable Energy and Energy Efficiency on Tribal Lands" Grant Program. The grant was made under the "First Steps" Energy Organization Development category. The grant award also included funding from the "First Steps" Human Capacity Building category. The organizational and capacity building activities proposed by SCAT under this grant included:

- The analysis and selection of preferred form(s) of energy organization (this Energy Organization Analysis, hereinafter referred to as "EOA").
- Start-up staffing and other costs associated with the preferred SCAT energy organization.
- An intern program.
- Staff training.
- Tribal outreach and workshops regarding the new organization and SCAT energy programs and projects, including two annual tribal energy summits (2011 and 2012).

U.S. DOE defines the purposes of the two First Steps grant categories as:

*... intended for the planning and/or establishment of an energy organization such as a utility, energy office, energy service company, tribal committee, or other organizational unit; or the enhancement of an existing organizational unit. This effort is expected to be in response to a specific need or goal of the Tribe, be of limited duration with clear measurable results or end-products, and have identified sources of funding or revenue to sustain the operation beyond US DOE funding. Activities may include:*

- *Evaluation of organizational structures as they relate to the Tribe's long-term strategic energy plan and implementation opportunities (i.e., utility, energy office, ESCO, tribal committee, or other organizational unit).*
- *Establishment of an energy organization or tribal unit for managing tribal energy resources or implementing the tribal strategic energy plan.*
- *Enhancement of an existing tribal energy organizational unit or function for managing tribal energy resources or implementing the tribal strategic energy plan.*

*Human Capacity Building activities are intended to be associated with increasing the capabilities or skills, knowledge base, awareness, or expertise of tribal members for implementation of a tribal strategic energy plan. Applications under this area should provide a correlation between the proposed activities and the strategic plan or energy development activities of the Tribe. This effort is expected to be in response to a specific need or goal of the Tribe and be of limited duration with clear measurable results or end-products. Human Capacity Building may include such activities as:*

- *Training (specific course or curriculum)*
- *Workshops.*
- *Participation in meetings or conferences.*
- *Internship programs.*
- *Community meetings or workshops.*
- *Development of renewable energy or energy efficiency informational materials.*

## **ENERGY GOALS and OBJECTIVES**

The establishment of a tribal energy organization is consistent the SCAT's 2008 Tribal Strategic Plan, as recently amended in 2011. The SCAT's 2008/2011 Tribal Strategic Plan reference some energy policies and plans for the Reservation. Proposed energy project development strategies included electrical transmission upgrades and hydroelectric power generation, and solar and biomass renewable energy projects. These strategic plans also identify energy-based business projects as a key economic development undertaking. The 2008/2011 Plan states in part:

- *The Apache People will live a balanced life in harmony with spirituality, culture, language, and family unity in an ever-changing world.*
- *The Apache People shall create a strategic framework for our tribe to grow and prosper.*

The SCAT's 2011 Energy Strategy and Program (developed using U.S. DOE EECBG funding) suggested several goals and benchmarks consistent with establishment of a SCAT energy organization:

*The San Carlos Apache Energy Strategy and Program provides a framework for future energy initiatives that support the Tribe's energy security and independence, and that will reduce the negative impacts of energy consumption and greenhouse gas emissions on the Tribe's people and Reservation.*

- *Providing for the SCAT's energy security and independence by developing and utilizing renewable energy generation resources and technologies.*
- *Decreasing the SCAT's overall consumption of non-renewable energy and non-recyclable materials.*
- *Enhancing the SCAT's natural and built environments through reducing greenhouse gas (GHG) emissions.*
- *Reducing per-capita and overall energy costs, and saving money for the SCAT's institutions and members.*
- *Promoting sustainable, energy efficient practices and systems in the SCAT's homes, businesses, and institutions.*
- *Building and maintaining sustainable and energy efficient SCAT infrastructure and facilities.*
- *Diversifying the SCAT's economy by supporting new renewable energy jobs and skills.*
- *Establishing an integrated program of energy efficiency and conservation projects and activities.*

The establishment of a SCAT energy organization should meet the following objectives, as defined in the SCAT's approved grant application and agreement for this EOA:

- *Provide for consistent support and management of the SCAT's energy policies, projects, and programs (currently the program is managed part-time by the Planning & Economic Development Department Director).*
- *Implement the SCAT's 2011 Energy Strategy and Program, and expand and augment this Energy Strategy over time.*
- *Meet key renewable energy and environmental benchmarks as defined by the 2011 Energy Strategy and the approved grant application, including compliance with SCAT, regional, state and national energy, greenhouse gas reduction, and environmental policies.*
- *Help secure long-term capital development and operational funding advancing the SCAT's energy projects and programs.*

- *Provide outreach, training and education to help sustain SCAT energy program growth, and to secure the support and participation of the SCAT government, other government entities, area energy utilities, San Carlos Apache Reservation residents and businesses, San Carlos Apache tribal members, and neighboring communities.*
- *Spur “green” and renewable energy-associated economic development, business creation, and employment on the Reservation.*
- *Support the development of energy sector expertise within the SCAT government, and among tribal members, that can be applied to managing SCAT energy programs and projects, and in assessing private sector energy development proposals.*

## **2011 ENERGY STRATEGY and PROGRAM**

The SCAT energy organization will need to effectively coordinate, manage, and advance the SCAT’s current and future energy projects and programs. Utilizing a \$317,000 U.S. DOE Energy Conservation and Efficiency Block Grant (EECBG) award, other grant funding, and direct tribal resources, the SCAT has undertaken or is planning the following energy conservation or renewable energy generation initiatives:

- Development of a SCAT Energy Strategy and Program (**Note:** *this Strategy was adopted by the Tribal Council in November 2011*).
- Energy efficiency audits for approximately 50 tribally-owned commercial and institutional buildings, and 200 tribally-owned low-income housing units (**Note:** *this initiative included the hiring and training of two staff energy auditors*).
- Development of a model, roof-mounted solar PV project on the Shelter Care institutional facility located on the Moonbase subdivision near the Reservation’s Peridot community.
- Conducting two-day SCAT Energy Summits in December 2010 and 2011, with a third scheduled for 2012.
- Recycling programs at some SCAT government departments and enterprises.
- Planned construction of new bicycle and pedestrian routes along sections of Highway 70 and Highway 170.
- Conducting (2012) a solar feasibility study on lands in the southwestern portion of the Reservation at both community and commercial-scales.
- Development (2012) of a new roof-mounted solar PV powered elementary school near the Reservation’s Bylas community, and an associated 120-home residential community also utilizing roof-mounted solar PV.

The 2011 SCAT Energy Strategy and Program has particular relevance for helping to assess and define the most appropriate and effective type(s) of energy organizations and staffing for the SCAT. The *Future Energy Initiatives* identified in the 2011 Energy Strategy that are most germane to the assessment of different organization types include:

1. **Planning:** Produce and regularly update a SCAT Energy Strategy, including an initial update developing baseline data and information; and conduct an EOA to determine the preferred form(s) of energy organization to meet tribal energy goals and objectives.
2. **Building Codes:** Adopt International Building Codes, including the International Energy Conservation Code, and apply same to all new building construction and existing building renovations.

3. **Building Energy Audits:** Conduct energy efficiency audits for all SCAT-owned housing, commercial, industrial, and institutional buildings.
4. **Building Energy Efficiency and O&M:** Undertake a program of weatherization and energy efficiency upgrades to SCAT-owned buildings, starting with housing, then extending to commercial, industrial, and institutional buildings; and adopt energy efficient building O&M practices for all tribal buildings.
5. **Renewable Energy Development:** Focus on the development of both community and commercial-scale solar power; consider the possibilities for geothermal and biomass energy development; and evaluate the potential for re-commissioning the Coolidge Dam as a hydropower facility.
6. **Energy Transmission and Sales:** Conduct studies and assessments of electrical power transmission facilities within the Reservation to determine system locations and rights-of-way, capacity, ownership, condition, reliability, sales markets, and other limiting or beneficial factors.
7. **Greenhouse Gas Reduction and Carbon Sequestration:** prioritize energy efficiency and conservation programs and projects that reduce greenhouse gas emissions; evaluate the potential for SCAT forest lands being formally managed as a carbon sequestration bank; evaluate the potential of the sale of green tags from this bank and from SCAT renewable power generation.

**Note:** *the 2011 SCAT Energy Strategy also suggests energy efficiency and conservation efforts with respect to transportation systems, programs, and procurement policies; and waste management and materials conservation. Although important elements in the SCAT Energy Strategy, these programs would probably not be managed directly by any form of energy organization described in this EOA.*

## **TRIBAL and RESERVATION PROFILE**

The cultural, physical, governance, and settlement characteristics of the SCAT and the San Carlos Apache Reservation (Reservation) are important to understand in assessing the most appropriate and effective form(s) of energy organizations that might be established.

### **Location**

The SCAT resides on a 1.8 million-acre reservation in south-central Arizona, approximately 90 miles east of Phoenix. The Reservation includes parts of Gila, Graham and Pinal Counties. The Reservation's northern boundary is coincident with the southern boundary of the White Mountain Apache Reservation and delineated by the Salt and Black Rivers, and the Salt River Canyon. The ridgeline of the Gila Mountains defines the southeast boundary. To the west, the Reservation's boundary is coincident with that of the city of Globe. U.S. Highway 70 runs through the southerly sections of the Reservation. The Gila River and its San Carlos River tributary bisect the western and southern portions of the Reservation. The Gila River is impounded by the Coolidge Dam, a historic structure completed in 1930 that forms the San Carlos Reservoir (**Note:** *the Coolidge Dam was built as a hydroelectric facility but has not operated as such for several decades*).

### **Natural Features**

The terrain and natural setting of the Reservation range from low desert grassland to pine forested mountains. Elevations range from 2,400 feet to above 8,000 feet. More than one-third of the Reservation is forested, and these forests and woodlands, plus riparian areas along river corridors, provide for a wide diversity of wildlife habitat. The central third of the Reservation is characterized by



the riparian areas and other vegetation associated with the Gila and San Carlos Rivers, and the San Carlos Lake formed by the impoundment created by the Coolidge Dam. Sonoran desert scrub and lower elevation grasslands (plus some higher elevation grasslands in the Point of Pine area) predominate in the rest of the Reservation.

The Reservation is bordered on the west, east and south by major mining districts and ore deposits. To the west are the highly productive Globe-Miami and Christmas copper districts and to the east the giant porphyry-copper deposits of Clifton-Morenci. At least four porphyry-copper deposits are north of Safford, just south of the Reservation. The Saddle Mountain, Aravaipa, and Stanley districts edge into Reservation's "Mineral Strip" in the southwest part of the Reservation. A Reservation Mineral Resource Assessment published in 1998 indicates that the potential for the discovery of mineral deposits on the Reservation is moderate to high. National Renewable Energy Lab (NREL) resource mapping indicates that the potential for direct-source geothermal development is "high" in the Mineral Strip.

The Reservation has abundant natural resources, but very little of these natural resources are processed on tribal lands. A tribally-owned saw mill, and a nearby sand and gravel operation, is located in the southwestern portion of the Reservation; and small scale gemstone mining and processing occurs. The Reservation is the source of approximately 90% of the world's semi-precious peridot gemstones, extracted from the Mineral Strip area. Most of the northerly portions of the Reservation are mountainous and undeveloped, and are prime lands for the SCAT's cattle and forestry enterprises, and for outdoor recreation and hunting.

### **Communities**

Human population is concentrated along Highways 70 and 170, and the Gila and San Carlos River watersheds in the central third of the Reservation. The community of San Carlos is five miles north of Highway 70 and is the largest population center on the Reservation. San Carlos is the location of most SCAT government offices. The other two main communities on the Reservation are Peridot and Bylas. Peridot is on Highway 70 and is the site of a high/middle school, an Indian Health Service (IHS) hospital, the SCAT cultural center, the SCAT's telecommunications enterprise, and various retail and service businesses. Bylas is also along Highway 70 at the southeastern edge of the Reservation, and is primarily a residential community, with some highway commercial development. Only about 500 people live on the Reservation outside of these three centers. **Note:** *these three centers are not incorporated towns, thus boundaries and populations are not precise.*

On the southwestern edge of the Reservation is a business area referred to as Cutter. This area is site of the SCAT enterprise-owned and operated Apache Gold Casino and Resort, a large rodeo grounds, a tribally-owned general aviation airport, and the tribal sawmill and sand and gravel operations referred to earlier in this report.

### **Governance**

The SCAT is a federally recognized tribe. The Tribal Constitution was adopted in 1936, and revised most recently in 1984. The Tribal Charter was ratified in 1955. The SCAT is governed by an elected Council representing four districts, with chair and vice-chair elected by the full tribal membership. Government administration is headed by a Council-appointed General Manager. A wide range of committees and boards provide oversight and direction to specific SCAT services and programs, and the SCAT's government offers a large range of programs and services – planning and economic development, housing, transportation, forestry, etc.

### **Demographics**

The Reservation's 2010 population is estimated at approximately 11,700 (2010 Census numbers not available as of writing). Tribal membership is 14,600 (2011). Approximately 20% of enrolled tribal members live off-Reservation due to the lack of jobs or by personal choice. A 2010 tribal demographic survey calculated the median annual income at \$15,600.00, about half of the income level for Gila and Graham Counties, and slightly more than a third of the median income in Arizona as a whole. All recent tribally produced reports (2000, 2004, 2006, and 2010) indicate that nearly every measure of income and poverty level place a majority of the Reservation's residents as living below the poverty line. For males on the Reservation, the unemployment rate was nearly seven times higher than for males in the state of Arizona. A 2006 Tribal Labor Force Report found that the unemployment rate among tribal residents available to work was 65%, with 13% of the employed tribal population still living below the poverty level.

### **Economy**

Economic development on the Reservation has been predominantly limited to the SCAT's government and business enterprises. In total, the SCAT government, the casino/resort, and other tribal enterprises employ approximately 950 people. Other governmental and public services, such as the school district, IHS hospital, BIA, and a tribal telecommunications enterprise employ approximately 475 people. Private business and services account for a relatively small number of jobs. Tribal members are engaged on-Reservation in cattle ranching, wildlife management, forestry, gemstone mining, outdoor guiding, and tourism. Tribal members are also known for their basketry, beadwork, and jewelry. The Peridot and Bylas areas have a small variety of retail and service businesses. This relatively narrow band of employment opportunities contributes to job skills and expertise being limited on the Reservation, and tends to take those tribal members with good skills off-Reservation to live and work.

### **Energy Supply and Transmission**

Most electric power for the central portion of the Reservation (San Carlos, Peridot) is provided through the San Carlos Irrigation Project (SCIP), a division of the Bureau of Indian Affairs (BIA). Graham County Electric Cooperative provides electricity to the southeastern portion of the Reservation around Bylas. APS Power serves southwestern areas around the casino/resort. The Salt River Project powers limited outdoor recreational facilities and housing in the remote Point of Pines area. Southwest Gas provides natural gas service within the Reservation.

A 2010 assessment of retail power costs, conducted by SCAT for a potential energy efficiency grant through USDA's High Energy Cost Grant Program, showed retail electrical power costs on the Reservation to be in excess of 200% of the U.S. national average. Discussions with SCAT officials in the course of developing the 2011 SCAT Energy Strategy captured a widespread opinion that SCIP power services were highly unreliable and that the condition of SCIP transmission infrastructure was very poor. As of late-2011, SCAT officials were having some positive dialogue with new SCIP management that indicated that the agency was in general agreement as to these problems.

The 2011 SCAT Energy Strategy states that the SCAT's records are limited with respect to ownership, capacity, and condition of power transmission lines and other power facilities on the Reservation. None of these transmission facilities are within the SCAT's jurisdictional control. In developing the recently

approved grant application to U.S. DOE Tribal Energy for a solar feasibility study, many basic - but at the time unanswerable - questions arose as to the state of power transmission within the Reservation.

### **Energy Generation**

There are presently no developed commercial renewable energy resources on the Reservation, although private solar, wind, and biomass developers have frequently approached the SCAT's government with proposals. **Note:** *the exceptions are the numerous conventional "wind mills" still used for pumping small groundwater wells for livestock and rural water supply purposes.* Nor is there any commercial non-renewable energy produced on the Reservation.

Preliminary assessments included in the 2011 SCAT Energy Strategy indicated significant solar and geothermal potential, with solar being suggested by this Strategy as the priority renewable power technology – both for commercial-grade development and for meeting more direct community-scale electric energy needs.

The best direct-source geothermal resources appear to be in an area in the lower elevation and more arid southwestern portion of the Reservation called the Mineral Strip. The Mineral Strip is however the site of economically and culturally important gemstone mining. Geothermal development could conflict or compete with this mining, and the area is relatively remote from any settlement or development that could use direct-source geothermal. Ground-source geothermal building heating and cooling could be more generally applied within the Reservation, subject to soil conditions, water table levels, and availability of adequate surface areas adjacent to buildings.

Hydroelectric power development possibilities are centered on re-commissioning the Coolidge Dam, although the costs and regulatory complexity of such an undertaking would be significant. The smaller Talkalai Dam northeast of San Carlos may also have some "small hydro" potential. Some planning has also been undertaken for a water transmission tunnel bringing Black River water into the developed areas of the Reservation. If this water project was constructed, associated small-hydro generation may be possible.

The SCAT has also conducted preliminary assessments for biomass from forestry resources, primarily to power the tribal sawmill. The 2011 Energy Strategy found very limited resource potential, and some cultural and visual disincentives, for wind power.

### **Energy Consumption**

Many of the SCAT's buildings and facilities are older stock and in poor condition, particularly in San Carlos where many date back to the 1930's and 1940's. Much of the SCAT-owned housing stock is in similar condition. In response to these circumstances, the SCAT's 2009 EECBG-funded energy activities included energy efficiency audits of some 250 buildings and homes, and the 2011 Energy Strategy suggested undertaking energy efficient building upgrades and weatherization, and energy efficient building O&M practices, as two of three priority SCAT energy initiatives (the third priority is solar power). The 2011 Energy Strategy also suggests that an "energy options analysis" (the term used in the U.S. DOE Tribal Energy grant program) be conducted in the near-term to catalog SCAT's baseline consumption patterns and levels, and estimate baseline GHG emissions.

## **ENERGY ORGANIZATION OPTIONS**

### **Generally**

Whether the SCAT plans to play a passive or active role in energy program or project development, the different types of governmental and/or business approaches that are available should be carefully considered. The type of energy organization that may be formed or adopted can and will have multiple and complex implications for organization responsibilities, sovereignty, on-Reservation economic development and job creation, project development and ownership, program development and management, legal liability and limitations, financing and revenues, and many other issues.

Tribes have unique sovereignty, tax, legal, land ownership, and regulatory rights and prerogatives that can influence and/or limit the “best” energy organizational structure. Ideally, a tribe would already have (or hire in-house) all the requisite expertise needed for a given energy program or project, but often must legitimately rely on consultants and outside experts. While this “outsourcing” is often necessary to begin with, SCAT should always favor solutions that maintain or expand sovereignty and ownership, build internal capacity and expertise, and establish financial and operational control over its energy resources and energy generation.

There are many possible energy organization options. The “organization” is the governmental or legal business structure that is set up to implement energy projects and programs. Energy projects and programs are usually long-term commitments and require a stable professional business-like structure to be successful. In addition, while program responses to energy needs may be efficiently implemented under conventional governmental organizational forms, more intensive capital energy projects with specialized technical, management, and operational requirements may benefit from organizational structures drawing on private business models.

Expansion of the responsibilities of an existing SCAT department, enterprise, or office to include energy program and project implementation may be the best approach in many circumstances, but sometimes a whole new entity, such as a tribal utility, is needed. Joint ventures or contracts with outside partners may also make the most sense in some cases, although long-term SCAT economic and employment benefits may be diminished by routinely contracting out energy implementation responsibilities.

**Note:** *although this EOA recommends a three-step implementation of a SCAT energy organization, and suggests that some of the forms of organization described herein NOT be pursued further, this does not preclude any of the options described herein from being used at some point in the future based on changing circumstances. All the options should be kept in SCAT’s future toolbox, and this EOA should be used as a reference document should new opportunities arise.*

### **Local Context**

The first step in selecting a long-range energy organization type is determining a set of energy goals and programs. Some energy organization types work best or exclusively for specific activities, while others better span a range of efforts. What is best for energy program management (say a building energy audit program) may be inadequate for supporting a successful renewable energy capital development project (say commercial-scale solar facilities). Tribal energy goals may also change over time as programs and projects expand and change, or as strategies are modified. The SCAT should consider the preferred form(s) of energy organizations in the context of local conditions and circumstances.

The earlier *Energy Initiatives* and *Tribal and Reservation Profile* sections of this EOA summarize the context within which SCAT should consider its options. The 2011 SCAT Energy Strategy proposes a range of energy services and programs ranging from energy efficient building improvements to commercial-scale renewable power generation. The SCAT's energy organization solution may also involve establishing the terms and conditions for a gradual evolution and diversification of the tribal energy organization as certain milestones are reached (or not), or may simultaneously utilize more than one organizational approach. Notwithstanding such considerations, the starting point is an overview of what is possible. A brief description of some possible energy organization types follows.

### **Energy Organization Types**

**Ad-Hoc:** This approach involves no specific and ongoing tribal energy organization at all. Under this model, SCAT energy projects and programs, and proposals for privately sponsored energy projects on the Reservation, would be handled on a case-by-case basis and assigned ad-hoc to the elected and appointed leadership, different SCAT departments or committees, and/or individual SCAT staff.

SCAT can also run energy programs and projects through individual contracts for professional services and management, design and construction, and/or technical services. This is not necessarily a poor approach. Even a fully developed tribal department or enterprise will of necessity continue to contract-out services when project or program requirements are specialized and the skills and expertise needed do not exist or are unavailable within the tribe.

As noted below, the SCAT has already been evolving a more centralized energy program management approach, and the 2011 SCAT Energy Strategy called for full evaluation of energy organizations types.

**Government Office or Department:** Most recently, the SCAT has increasingly handled energy projects and programs through its Planning and Economic Development Department, except for some special initiatives, such a recent assessment of sawmill biomass power potential led by the SCAT Forestry Department, or the Bylas "solar community" being planned by the SCAT Housing Authority. A "start-up" or even ongoing solution to SCAT energy management may be to simply continue to place energy staff - such as the current energy auditors, and the new "energy organization coordinator" position - in the Planning Department.

A "next step" to the current approach would be creation of a stand-alone SCAT energy office or department. Formation of an energy office or department should be more than adequate for many current SCAT energy program activities, such a managing audit programs and staff, promoting energy efficiency on the Reservation, and the like. As part of an existing office or department, energy may have to compete for attention with other, sometimes quite different, departmental priorities. Thus, a stand-alone operation may also better serve the interests of long-term energy program development.

For capital-intensive energy development and management projects, especially where the SCAT has not otherwise developed managerial or technical experience and expertise (such as is currently the case for instance for commercial-scale renewable energy projects), the tribal office or department option may not work as well. In particular, the cost-benefit ratios of renewable energy projects are highly influenced

by the availability of tax and utility incentives, which may be greatly limited if projects are developed directly by the SCAT government.

**Joint Ventures:** Joint ventures work most effectively for capital projects and/or for distinct single purpose operations. A commercial-scale solar PV power generation facility is a good example. Joint ventures would require the creation of a joint-ownership business partnership between the SCAT and a non-SCAT entity. A more diverse portfolio of energy capital projects and efficiency programs is probably, but not necessarily, best helmed by a tribal enterprise such as a utility authority, although such a utility could certainly be the tribal entity that forms joint ventures for energy project development and management.

The non-SCAT joint venture partner can bring financing, tax benefits, and/or development and management expertise not otherwise available to the SCAT government. Financing, capital development, management, operations, revenue collection, power purchasing, and other activities are shared or divided among the partners. A joint venture should always be structured to build tribal capacity over time, by creating tribal member jobs and training at all levels of management and operations, and include options for eventual tribal buy-out of the resulting energy business or project.

The tribal joint venture partner could be the SCAT in its corporate capacity, a tribal energy utility, or other incorporated tribal business enterprise, although direct joint venture partnerships with conventional tribal government are possible (leaving open however many issues of immunity and financial liability). The non-SCAT partner can be an enterprise formed by another tribe, a private developer, a separate utility or cooperative, or some other legal entity (there are examples of non-profits engaging in joint venture energy development).

**Note:** *not all of the forms of tribal energy organizations described herein fully accommodate joint ventures, especially organizational forms that don't include separate incorporation (such as tribal departments or offices).*

**Enterprises:** A SCAT enterprise organization can deliver significant benefits with respect to tribal sovereignty, ownership, immunity, and tax issues, and at the same time can be attractive to outside investors and partners. Energy projects and programs, and especially capital energy project development, if conducted directly by the tribal government, may expose SCAT assets to liabilities incurred in connection with the energy activity, and tribal government leadership and staff may need both near- and long-term assistance in project development and management. The governmental political process can also be an impediment to some financially and time-sensitive business activities. This is especially more likely to be the case with complex capital projects that will ultimately generate energy “products” (renewable energy) with the potential for off-Reservation sales (power into the regional grid).

The SCAT, as do many tribes, has considerable experience in forming and operating separate business enterprises that can protect tribal assets and mitigate liabilities. For example, water supply is managed through the SCAT Water Authority, and telecommunication on the Reservation is available through the San Carlos Apache Telecommunication Utility, Inc. (SCATUI). Discussions with SCATUI officials in the course of developing this EOA indicate that this utility's original tribal charter included the possibility of assuming energy utility functions in the future.

The forms of incorporation for tribal enterprises are outlined in more detail in the next section of this EOA. Three common types of energy businesses that may be formed as tribal enterprises are summarized below:

1. **Utility Authority:** The utility authority is simply a specific type of enterprise. For tribes desiring to directly provide electric power (and/or natural gas) to local customers (one of the long range SCAT goal defined in the 2011 Energy Strategy), whether purchased on wholesale markets or generated on the Reservation, creation of a tribal utility, or expansion of the charter of an existing operation (for example, the SCAT telecommunications utility) may be an effective option. ASCAT energy utility could significantly facilitate the development and ownership of power generation facilities and improvements to transmission infrastructure, the provision of reasonably priced retail power to SCAT customers, and the sale of locally generated power into the regional power grid. The energy utility could also evolve into a major employer providing specialized training and skills to SCAT citizens.

While a SCAT energy utility enterprise can strongly contribute to energy sovereignty, it also brings complex responsibilities. If power production, not just power delivery, is part of the utility's mandate, the utility will need to develop (or contract for) managerial and technical expertise to properly design, permit, construct, operate and maintain, replace, and upgrade energy generation systems. It also needs to develop or gain access to reliable infrastructure to distribute the power. This could include building and maintaining transmission lines and substations.

The management and operating responsibilities of power production in particular require a solid legal entity with broad financing authority, capable personnel (both managerial and technical), a stable business environment, and one that is independent of tribal politics. A difficult utility responsibility in close-knit tribal communities can be issues around billings for service. Late payments or ignored bills can raise the possibility, for instance, of having to disconnect service to a needy tribal elder. Pragmatically, a separately governed business-based enterprise may be able to more equitably deal with such issues than an elected tribal council. In response to these factors, several tribal energy utilities have been formed across the U.S. (see the *Case Studies* section of this EOA).

2. **Energy Service Company (ESCO):** ESCOs typically focus on delivering energy efficiency improvements, but can also manage distributed power or remote off-grid energy services. ESCOs provide energy efficiency improvements to residential, commercial, or industrial customers, and collect revenue based on the monthly cost savings from such improvements. Typically, this is a shared-savings arrangement, where the building owner splits the savings with the ESCO. After the ESCO has been repaid (including profit), the full ownership of the assets reverts to the building owner.

ESCO's require a level of specialized technical and management expertise that the SCAT may not necessarily initially possess. A viable "start-up" approach may be a joint venture with an existing non-tribal ESCO, with training for tribal members that could eventually lead to transfer of a fully functioning ESCO back to the SCAT. Nonetheless, the ESCO is probably not the best model for a tribe desiring to develop and operate renewable power generation facilities (as is the case with SCAT).

3. **Cooperatives:** Cooperatives are membership organizations, usually formed to deliver services to rural areas and remote customers where other options are not available. In terms of electrical power services, the best examples are the electric cooperatives that were first formed in the 1930's and 1940's in the rural western U.S. to bring electrical power to isolated farms. These cooperatives still form an important part of local power supply in many rural areas, and, as such areas have grown in population, "co-ops" now often serve urban and suburban communities.

Electric cooperatives are seldom in the power generation business. Cooperatives usually buy from other power companies and utilities, and distribute "retail" power to members. Cooperatives do however usually own and operate the infrastructure that delivers the power to members (transmission lines and substations). The Graham County Electric Cooperative serves the southeastern Reservation around Bylas.

Cooperatives might be useful for rural tribes (such as the SCAT) with dispersed populations and/or with few ambitions to generate commercial-scale power (probably not the case with the SCAT). The cooperative model may also be suitable for a region where two or more tribes exist in close proximity (such as the abutting San Carlos and White Mountain Apache Reservations), and each individual tribe is too small and/or with too few resources to make formation of a stand-alone tribal energy utility cost-effective. A cooperative organization could service collective tribal energy supply needs, and provide more "weight" when negotiating power purchases and infrastructure improvements with regional power suppliers.

## **LEGAL STRUCTURES**

### **Generally**

Although a SCAT energy office or department may be adequate for many types of energy program development and management, other efforts such as renewable energy development projects may benefit from tribal enterprise and/or joint venture formation. Incorporation of these latter forms of energy organization can bring many advantages with respect to tribal sovereignty, immunity, liability, and financing. Following is a primer on the possible options for the SCAT to consideration once the basic type of organization is settled on.

**Note:** *the SCAT should rely on the advice of its tribal attorney and potentially on specialized outside legal counsel in establishing the legal structure of a tribal energy organization. This EOA does not purport to provide the detailed legal analysis required in such an implementation process.*

There are two primary legal forms used by tribes - government and corporate. Within these two forms there are several variations for the SCAT to consider when contemplating managing energy programs and projects. Which structure is best will always be tribe-specific and program-specific. Factors to consider are:

- The degree to which a specific option supports or complicates SCAT sovereignty, self-sufficiency, cultural norms, and economic development.
- The legal, operational, and fiscal complexities of legally establishing/implementing a specific option.
- The character, pace, and timing of the energy projects or programs being considered.
- The desired near-term and long-term SCAT management and operational role(s).



- Whether a specific structure is necessary in order to satisfy the needs of any business partner(s).
- Whether a specific structure is needed for a particular financing option(s), or to satisfy any lenders.
- Implications for sovereignty and legal immunity issues.
- Tax, bonding, and other financial considerations and implications.
- Consistency with the SCAT's long-term strategic goals and objectives, and other policies and plans, whether general or energy specific.

### **Government Form**

For the government form, a separate government entity (not simply a separate department or office of the existing tribal government) is established by statute or ordinance. This enterprise can be directly controlled by the tribal council, but more often features a separate board and management team. Such entities are easy to form, enjoy sovereign immunity, and are exempt from federal income tax. However, such entities are still essentially units of tribal government and may not be able to secure certain types of financing, which may be important where capital-intensive energy projects are involved. Tribal government assets may also not be as well protected from liabilities arising from the actions or policies of the separate entity, as would be the case with corporate forms of tribal enterprise (see below).

A variant form of government-based enterprise can be established as a “political subdivision” of the tribe by fully delegating specific sovereign power(s) to the separate government entity. Formation of a tribal political subdivision requires both BIA and IRS confirmation. A political subdivision of a tribe is exempt from federal income tax, retains sovereign immunity, and may issue tax-exempt bonds.

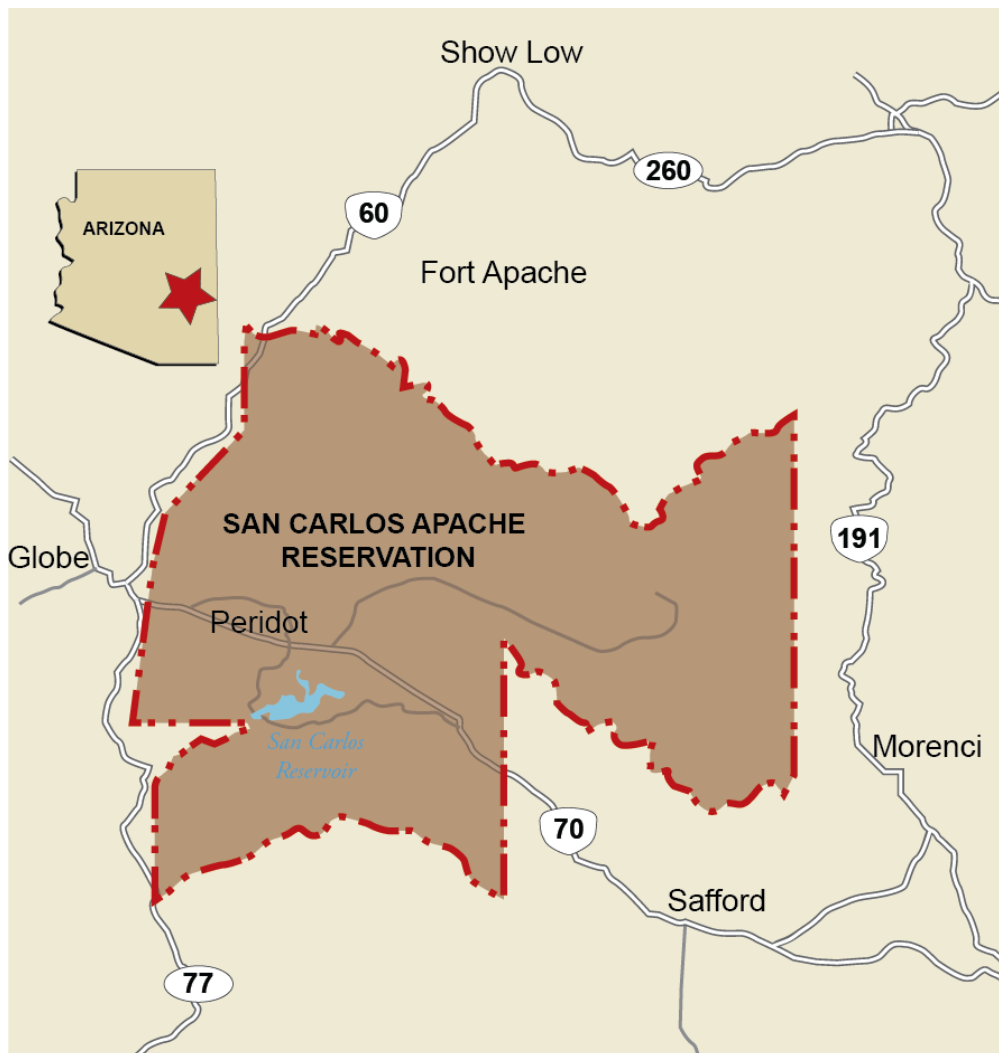
### **Corporate Form**

There are several iterations of possible corporate enterprise structures:

1. **Section 17:** Tribes can form corporations under Section 17 of the 1934 Indian Reorganization Act. Such corporations are exempt from federal income tax and may issue tax-exempt bonds. A Section 17 corporation can be sued in its corporate form, but the tribe itself retains sovereign immunity. Unlike political subdivisions (see above), assets and liabilities are wholly separate from the assets and liabilities of the tribe. Like the government form of enterprise, however, a Section 17 corporation must be wholly owned by the tribe, which precludes equity ownership by outside investors. However, since the assets of the corporation can be pledged as collateral, securing debt financing may be easier.
2. **Tribal Law Charter:** Another corporate form available to tribes is a corporation chartered under tribal law. A tribally-chartered and owned corporation has the benefit of achieving separation of corporate assets and liabilities from tribal assets and liabilities. The financing options for a tribally-chartered corporation can include loans, taxable bond issuances, or debt from a commercial lender. However, in order to secure financing, the tribally-chartered corporation may be required to waive sovereign immunity. Another issue for tribal law chartered corporations is that the corporation may be subject to federal income tax.
3. **State Law Corporation:** This form also achieves full separation of tribal assets and liabilities from corporate assets and liabilities. Financing options include loans, taxable bond issuances, or debt financing from a commercial lender. However, a state law corporation is subject to federal

income tax, may not issue tax-exempt debt, probably cannot assert tribal sovereign immunity to suit, and will be subject to state laws.

4. **Limited Liability Corporation (LLC):** This form fully separates tribal assets and liabilities from LLC assets and liabilities. A state law LLC is however not immune from lawsuit, and may not issue tax-exempt bonds. If a tribe is the sole member of an LLC, the LLC may enjoy tribal tax-exempt status; however, such treatment is not certain. If the LLC is part of a joint venture between a tribal and non-tribal entity, the tribe may still retain its tax immune status with respect to LLC activities.



## **OPTIONS EVALUATION**

### **Key Benchmarks**

The non-profit Council of Energy Resource Tribes (CERT) has developed several key benchmark questions for tribes to ask when embarking on formation of an energy organization. These questions help narrow and focus the range of possibilities that can be realistically pursued. This proved a helpful first step in the evaluation of the best energy organization type for the SCAT. The answers to these CERT questions relative to the SCAT and the Reservation, and a brief summary of the implications of those answers for the form of energy organization the SCAT might adopt, follow each benchmark question.

**1. Are tribal lands located in a predominantly heating or cooling climate?**

A “heating” climate is one where the primary use of energy is applied to heating buildings and facilities, and a cooling climate is one that results in most energy being used to cool spaces. Although the primarily settled areas of the Reservation are at a moderately high elevation (2,500 feet) and certainly subject to some cold winter mountain weather, these areas can be classified as being in a predominantly cooling climate.

*This factor supports the findings of the 2011 SCAT Energy Strategy that solar energy development would be highly viable and could be directed at electrical energy-intensive building cooling in the extended months of intense heat. Insofar as this climate type and Energy Strategy findings suggest development of local energy generation resources, the selection of an energy organization type with the capacity to develop renewable energy projects would be indicated.*

**2. Are tribal lands predominantly rural or urban?**

Even though the Reservation’s population ranks among the top 25 among U.S. Indian reservations (2010 U.S. Census), SCAT lands are primarily rural, with by far the largest percentage being essentially unoccupied forest, grasslands, and Sonoran desert lands. Most settlement and land use is concentrated in a compact area around San Carlos and along Highway 170, and along the relatively narrow Highway 70 corridor that extends from the Cutter area (site of the SCAT casino/resort) to the community of Bylas, a distance of some 36 miles. Even in these settled areas, the population density is low, housing is predominantly single and two-family on larger lots, and commercial and institutional buildings are limited and dispersed (except in the centers of San Carlos, Peridot, and Bylas).

*The Reservation’s rural character, and low population density concentrated in just three primary settlements, suggests that a wide diversity of energy initiatives are possible and highly desirable (as reflected in the 2011 Energy Strategy). The Reservation and its people can benefit significantly from updated infrastructure, conservation programs, building energy efficiency improvements and local energy generation. Given the size (large in area, small in population), character, and location of the Reservation such improvements may be achieved more quickly and efficiently if the SCAT adopts a multi-faceted, “home-grown” energy program.*

**3. How large is the tribe’s land base?**

The Reservation is one of the largest by area in the United States, covering over 1.8 million acres. Approximately 40% of the Reservation is high elevation forests and woodlands, with the balance dominated by river riparian areas, and grassland and Sonoran desert ecologies.

*The size and physical diversity of the Reservation provides for a wide range of choices in identifying suitable lands (and avoiding sensitive lands) for developing locally-based energy generation. Lands and features suitable for solar, biomass, hydropower, and geothermal development are relatively abundant. Only wind power potential is distinctly limited as nominally suitable (e.g.: consistent winds) lands have significant access, infrastructure and/or cultural issues. This would speak to an energy organization that could address a wide variety of opportunities.*

**4. What is the size and nature of the tribe's economic activity?**

Employment on the Reservation is primarily limited to the government sector (SCAT, school district, Federal agency offices) and to governmental business enterprises (casino/resort, telecommunications utility, etc.). There is some retail and service employment on the Reservation available outside of such government enterprises, as well as employment (often limited by season) in outdoor recreation, but almost no manufacturing or industrial employment (except activities like small scale gemstone mining and processing, and the tribal sawmill and sand and gravel operations – both of which operate only intermittently).

*The relatively narrow spectrum of economic development and employment opportunities contributes to job skills and expertise being limited on the Reservation, and tends to take those tribal members with good skills off-Reservation to live and work. A broad-based set of SCAT energy programs and projects could provide for a diversity entry-level employment opportunities, as well as the training and longer-range possibility of jobs providing more skills and expertise.*

**5. How much energy (and in what forms) does the tribe consume?**

Given the relative low intensity of human settlement and buildings on the Reservation, the expectation would be for modest levels of energy consumption. This is mitigated however by the high cooling energy demands generated by summer heat, and the poor condition and weatherization of many SCAT buildings. Statistics as to the total consumption and the power supply “mix” for electrical and natural gas energy are presently available only for limited SCAT building and facilities. The 2011 SCAT Energy Strategy calls for a near-term project to catalog specific consumption patterns on the Reservation.

*The Reservation does not have any significant individual power consumers, with the exception of the Apache Gold Casino/Resort. Even this facility would not be considered a “major” consumer in contrast to the copper mining operations that surround the Reservation. Loads within the Reservation primarily come from residential and institutional uses, and some commercial development. Given the Reservation's diverse land based (see discussion above) and potential for various forms of renewable energy development, one can envision that generating power for export in excess of local demand would be distinctly within the realm of possibility.*

**6. Does the tribe wish to provide electricity to areas not currently served?**

Although the condition and reliability of some transmission facilities on the Reservation is historically questionable (particularly SCIP facilities), for the most part electric power is available to all three settled communities and individual home sites. The need for some expansion may develop in the near-term based on the success of a proposed SCAT undertaking that will revert many unoccupied land grants within the Reservation. The SCAT has a longstanding policy of granting 4-acre rural home sites to tribal members. Many of these home sites have never been

developed. SCAT is working towards offering home sites in more concentrated, fully serviced new subdivisions in exchange for reversion of the rural sites to the tribe. Should these subdivisions develop, power transmission extensions may be necessary.

*In general, it does not appear that outright expansion of the electrical power grid and local service to new areas or power customers within the Reservation is a pressing need, although infrastructure upgrades and more localized extensions may be required. This circumstance would lessen the viability of the electrical cooperative organization option.*

### **Criteria and Desired Outcomes**

With the findings of the 2011 SCAT Energy Strategy and the answers to the above CERT criteria in-hand, six forms of energy organization options were evaluated – ad-hoc, tribal office/department, joint venture, utility authority, ESCO, and cooperative. Appendix A includes the matrix used to guide the evaluation of the various options. This matrix was developed and used by the SCAT’s energy consultant, and the tribal staff that is at present most directly involved in SCAT energy programs and projects, and was also reviewed by participants at the 2011 SCAT Energy Summit. Five key areas were initially identified as potentially important considerations. Under each area (see below), an associated series of desired outcomes were described.

#### **1. Supports Tribal Sovereignty and Self-sufficiency**

- Preserves/increases tribal authority and control over its resources and lands.
- Protects tribal assets, legal immunities, and privileges.
- Preserves tribal tax exemptions.
- Preserves/assures tribal ownership of energy assets (power plants, transmission).
- Allows for appropriate and orderly transitions to tribal management and ownership.
- Provides for tribal and Reservation energy independence.
- Compatible with tribal institutional capacity.
- Builds tribal management, institutional and technical expertise for the long-term.

#### **2. Supports Economic Development and Financial Stability**

- Creates new tribal revenue sources (for both energy sector investments and general operations).
- Creates near- and long-term tribal energy sector employment.
- Develops tribal energy sector skills and expertise (at both management and technical levels).
- Supports or helps to expand existing tribal and Reservation business enterprises.
- Allows for government, private, foundation, and/or non-tribal sector investments/loans/grants, and necessary development/management roles assistance.
- Can be implemented by following existing or permissible tribal codes, standards, and contracts.
- “Start-up” tribal institutional and management capacity is sufficient.
- “Start-up” financial investment is within the capacity of the tribe.
- Allows for issuance of tax-exempt bonds.
- Allows for debt financing from commercial lenders.

### 3. Protects Cultural and Social Values

- Exhibits a high degree of political and community acceptability.
- Creates social and economic resources supporting the preservation of social and cultural values.
- Enhances long-term tribal capacity through education and training.
- Allows for necessary partnerships with external partners without comprising tribal cultural and social values.

### 4. Preserves Environmental Resources

- Supports the sustainable use of local and renewable energy resources.
- Can develop a broad range of programs and projects supporting energy efficiency and renewable energy, thus displacing non-renewable resource development and consumption.
- Facilitates a broad range of energy programs and projects, thus reducing reliance on any one resource.
- Does not require the depletion of other resources to achieve energy goals and objectives.

### 5. Consistent with the 2011 SCAT Energy Strategy

- Satisfies the overall goals and objectives of the 2011 SCAT Energy Strategy.
- Is effective for implementing energy efficiency and conservation strategies.
- Is effective for implementing community-scale renewable energy development.
- Is effective for implementing commercial-scale renewable energy development.
- Supports greenhouse gas reduction strategies.

**IMPORTANT Note:** *Not all the above areas or desired outcomes were found to be uniformly applicable in conducting the energy organization option ratings. In addition, although Cultural and Social Values and Preserving Environmental Resources are crucial elements in the evaluation and implementation of actual energy programs and projects, the application of these benchmarks to the assessment of viable forms of energy organization proved to be highly subjective and speculative. The projects and programs proposed by an energy organization, not the form of organization, are the most relevant for application of these two factors. Test runs of the organizational rating matrix proved these two factors to be difficult to consistently apply or articulate. The SCAT should apply the Cultural and Social and Environmental Resources criterion to the specific evaluation of any future projects and programs.*

### **Options Rating Outcomes**

The options evaluations summarized below noted some weaknesses with each alternative. For some options, the weaknesses enumerated are significant enough to suggest they be given no further consideration. The remaining options are recommended as part of the phased approach to SCAT energy program management and development.

**The options recommended for no further consideration are:**

- **Ad-Hoc**
- **ESCO**
- **Cooperative**

The options that the SCAT should pursue in some form are:

- Office or Department
- Utility
- Joint Venture

Furthermore, given the weaknesses that a SCAT energy office or department may exhibit with respect to tribal immunities and finances, especially with respect to the development and management of energy infrastructure, this option is suggested only as an interim step in the evolution of the SCAT's energy organization.

**Ad-Hoc:** An Ad-Hoc approach has few advantages other than expediency once SCAT moves beyond a start-up phase where projects or programs are funded and implemented on a case-by-case basis. The SCAT is essentially well past this point with the completion of the 2011 Energy Strategy, the initiation of the ongoing energy audit program, and consideration of solar power studies and developments. **The Ad-Hoc approach has little ongoing value to SCAT**, and would now probably inhibit the orderly and effective implementation of the 2011 Energy Strategy, contributing to uncoordinated efforts, missed opportunities, duplication, and ultimate failure to establish a viable program.

**Note:** *The incremental step beyond an Ad-Hoc approach, which SCAT has been evolving effectively since 2009, is managing most energy programs and project initiatives in the Planning Department, while still permitting some initiatives to be pursued independently by other departments and enterprises.*

#### **Supports Tribal Sovereignty and Self-sufficiency**

- At best, an Ad-Hoc approach is neutral with respect to the desired outcomes under this rating criterion. Each one of the outcomes may be achieved Ad-Hoc, but there is nothing intrinsic in such an approach to managing energy programs and projects with respect to the desired outcomes.
- The potential for a lack of coordination and consistency in an Ad-Hoc approach may actually have the effect of slowing or harming the SCAT's ability to build energy expertise and capacity, advance sovereignty, etc.

#### **Supports Economic Development and Financial Stability**

- At best, an Ad-Hoc approach is neutral with respect to the desired outcomes under this rating criterion. Each one of the outcomes may be achieved Ad-Hoc, but there is nothing intrinsic in such an approach to managing energy programs and projects with respect to the desired outcomes.
- With respect to financial matters, the Ad-Hoc approach creates few if any advantages with respect to outside partners or financing, protection of tribal assets and immunities, etc.

#### **Consistent with the 2011 SCAT Energy Strategy**

- Not adequate for consistent and cost-efficient delivery and management of multiple conservation and energy efficiency programs.
- Major limitations in delivering and managing both community and commercial-scale energy generation and transmission projects.

**Government Office or Department:** The formation of a SCAT Energy Office or Department would be a viable platform for many of the energy programs that the SCAT is currently contemplating. **Formation**

of an office or department would allow SCAT and energy program manager(s) to focus exclusively on energy issues, and provide a central clearinghouse for tribal energy programs. However, at such point as SCAT may begin to design and build capital-intensive energy infrastructure projects, the office or department form has distinct limitations, particularly with respect to financing options and tribal immunities.

**Supports Tribal Sovereignty and Self-sufficiency**

- May not be able to efficiently manage and operate complex energy projects.
- Would not have the ability to shield SCAT government assets or immunities from commitments and liabilities arising from major renewable energy infrastructure development.

**Supports Economic Development and Financial Stability**

- Would not be able to accommodate some forms of financing for major renewable energy infrastructure development.

**Consistent with the 2011 SCAT Energy Strategy**

- Good vehicle for delivering consistent conservation and energy efficiency programs.
- If the office or department were properly chartered, could provide for better coordination of energy projects by other tribal departments and authorities.

**Utility Authority:** A SCAT enterprise utility authority can effectively encompass nearly all the future energy initiatives articulated in the 2011 Energy Strategy (with the exceptions of elements addressing transportation and materials conservation). In addition, the original charter of the existing SCAT telecommunications utility (SCATUI) contemplates a future energy utility function (this information provided by SCATUI management in December 2011); and the long-developed managerial and administrative capacity of SCATUI, as well as broad similarities in physical infrastructure and O&M equipment and some staff skills, may help “fast track” some elements of an energy utility enterprise.

**Supports Tribal Sovereignty and Self-sufficiency**

- Of all the options evaluated, a SCAT energy utility clearly has the best overall rating with respect to this criterion.

**Supports Economic Development and Financial Stability**

- An energy utility exhibits the best overall rating of this criterion and desired outcomes of all the options evaluated.
- The one weakness may be the start-up capacity of the tribe. The phased approach suggested herein, and the possibility of adding energy program/project functions to the SCAT’s existing telecommunications utility may help mitigate this.

**Consistent with the 2011 SCAT Energy Strategy**

- A SCAT enterprise energy utility authority can effectively encompass nearly all the future energy initiatives articulated in the 2011 Energy Strategy.

**Energy Service Company (ESCO):** Formation of, or contracting with, an ESCO could speed the completion of energy efficiency and weatherization improvements to SCAT buildings and facilities. The ESCO form of financing energy efficiency programs can also be attractive to tribes with more limited resources. These advantages notwithstanding, the relatively small number of SCAT buildings and facilities would probably not be especially attractive to an “outside” ESCO; and the formation of a local ESCO would require an investment of out-front funding and training very similar to, and probably better applied to, that needed for a form of energy organization with a greater range of strengths (e.g.: an



energy utility). Generally, **use of the ESCO form appears not to have the best potential for broad-based implementation of the 2100 Energy Strategy.**

#### **Supports Tribal Sovereignty and Self-sufficiency**

- The impact or contribution of an ESCO to sovereignty and self-sufficiency would vary depending on ESCO ownership/management. An outside ESCO may contribute little.

#### **Supports Economic Development and Financial Stability**

- The financing mechanism using by ESCO's is attractive for entities with limited capital resources.
- SCAT doesn't necessarily have the start-up expertise for such an undertaking, and to the extent such expertise needs to be developed the effort may be better applied to a broader-based energy organization (such as a utility).

#### **Consistent with the 2011 SCAT Energy Strategy**

- Not the strongest, most flexible means to develop energy generation projects.
- May have some limitations given the relatively modest number and size of SCAT buildings and facilities.

**Cooperative:** Given that there is probably a more limited need on the Reservation for many of the services that cooperatives typically excel at, for example extending service to multiple remote sites; and that other energy organization forms, such as energy utility authorities, are also highly effective vehicles for the types of retail power services coops provide, **the cooperative option does not appear to offer any unique advantages relative to the specifics of the SCAT or Reservation.** Other options (utility authorities, and for capital projects, joint ventures) appear to be more flexible.

**Joint Venture:** Should SCAT engage in the development of capital-intensive commercial-scale renewable energy projects (or even larger community-scale projects), joint ventures may be necessary to secure necessary financial, construction, and management resources, especially for design/construction and early phases of management. Joint ventures can be entered into and managed by many forms of tribal organization, such as energy utility enterprises or cooperatives. In this respect, for SCAT the **joint venture option works best as a TOOL rather than as the sole form of tribal organization used to advance energy initiatives.** In addition, the joint venture form would not be the most very flexible device for managing the full range of energy programs identified in the 2011 SCAT Energy Strategy.

## **Recommended Options and Phasing**

### **Phase 1: Interim Energy Program Administration**

***For the balance of 2012 and possibly into 2013, SCAT energy programs and projects should continue to be housed in the SCAT Planning and Economic Development Department, and supported by current Planning management and administrative staff.***

To the extent that SCAT programs or projects with significant energy components are being developed by other tribal departments and enterprises (such as the Housing Authority “solar community” being planned for Bylas), SCAT should use 2012 to define internal systems and agreements to better integrate and coordinate such efforts. A good recent example is the cooperative effort between Tribal Social Services and Tribal Planning to secure funding and install solar PV on the Shelter Care building.

### **Phase 2: Formation of Separate Energy Office**

***In late-2012, begin steps to establish a tribal energy office managed separately from other tribal government departments and offices, with the goal of implementing this step within the 2013 budget.***

Towards the end of 2012, as U.S. DOE EOA (and EECBG) energy program funding is fully expended, and the grant-funded energy coordinator and energy auditor positions will have to transition to replacement grant funding or direct tribal support, SCAT should consider establishing a tribal energy office, managed and funded separately from the Planning Department. The resolution or other tribal council action forming this energy office should specify its authority, including the degree of responsibility for coordinating and advising on all tribal programs and projects involving energy conservation, transmission, and generation. This would not preclude actions and developments by other tribal departments and enterprises (such as the San Carlos Apache Housing Authority’s planned solar community in Bylas), but should assure at a minimum that the energy office acts as a clearinghouse. This will help to avoid duplication and cost inefficiencies, better assure that emerging energy expertise and information is shared across all tribal initiatives, and focus the limited SCAT resources that may be available for energy initiatives. The SCAT energy office would also promote the use of the 2011 Energy Strategy as the benchmark policy for authorizing and developing SCAT energy initiatives.

### **Phase 3: Formation of Energy Utility Authority**

***Within the next three to five years, subject to the pace with which the SCAT approaches the development of capital-intensive energy generation projects and energy transmission and delivery initiatives, the SCAT should form a tribal enterprise energy utility.***

The SCAT’s 2011 Energy Strategy and recent work on energy audits, solar development, and other initiatives suggest a broad range of energy programs and projects, including energy efficiency and conservation improvements to tribal facilities, community and commercial-scale renewable energy generation, and even the possibility of taking authority for re-commissioning the Coolidge Dam as a hydroelectric facility. A tribal energy utility appears to be the best long-term option for managing the full range of energy initiatives in the 2011 Strategy.

**Note:** *formation of an energy utility should be preceded by a detailed legal review, development of a business plan, and articulation of a set of near- and long-term goals and objectives.*

## **Year 1 Work Plan** *(outlined by calendar year quarter)*

### **January - March 2012**

- Complete Energy Organization Analysis.
- Hire a tribal energy program coordinator housed at the SCAT Planning and Economic Development Department.

### **May - June 2012**

- Complete remaining U.S. DOE Energy Efficiency and Conservation Block Grant-funded programs and projects – energy efficiency audits and community-scale solar power retrofit of the SCAT Social Services Shelter Care facility.
- Launch the U.S. DOE Tribal Energy Program-funded solar renewable energy feasibility study for areas within the southwest Reservation.
- Identify direct tribal or other funding sources, and re-organization parameters and requirements, to establish a separate SCAT Energy Office to coordinate and/or manage all tribal energy efficiency and energy generation projects.

### **July - September 2012**

- Continue work on solar feasibility study.
- Continue discussions with BIA over the future of electrical energy transmission and retail services from SCIP.
- Continue work on developing funding sources for community-scale solar power at the Apache Gold Casino/Resort.
- Continue work on developing funding for building weatherization and energy efficiency upgrades.
- Adopt uniform building codes improving building energy efficiency and conservation.

### **October - December 2012**

- Develop energy consumption and GHG emissions inventory for the Reservation.
- Complete the solar feasibility study.
- Attend the November 2012 U.S. DOE Tribal Energy Program Conference.
- Conduct a Year 1 review and update of the 2011 SCAT Energy Strategy and Program.
- Develop a Year 2 SCAT energy program work plan.
- Conduct the 2012 SCAT Energy Summit.

## **CASE STUDIES and REFERENCES**

The U.S. DOE Tribal Energy Program publishes excellent descriptions of the types of energy organizations that generally fit the many forms of tribal governance and authority within the United States. The U.S. DOE Tribal Energy Office and the National Renewable Energy Laboratory (NREL) publish two reference documents of particular usefulness in informing and supplementing this SCAT EOA.

- *Guide to Tribal Energy Development* - available on-line @ [www1.energy.gov/tribalenergy/guide](http://www1.energy.gov/tribalenergy/guide).
- *Renewable Energy Development in Indian Country: A Handbook for Tribes* – available on-line @ [www.osti.gov/bridge](http://www.osti.gov/bridge).

Various organizations, including the U.S. DOE and U.S. DOE's Tribal Energy Program, and the U.S. Department of Interior and Interior's Office of Indian Energy and Economic Development (IEED), have developed case studies to assist tribes seeking to form, operate and manage energy organizations. The non-profit Council of Energy Resource Tribes (CERT) has also developed similar case studies. Additional published tribal case studies and presentations are included in this EOA as Appendix B.

## **APPENDICES**

### **A. Energy Organization Rating Matrix**

- Rating Matrix Instructions
- Rating Matrix Form

### **B. Case Studies**

- U.S. DOE Tribal Energy Program Review (2006)
- Navajo Solar Electric Case Study (2005)
- Tribal Renewable Energy (2008)
- Developing Tribal Utility Ability (2006)
- Renewable Energy Development on Tribal Lands (2007)
- Tribal Energy Efficiency measures: Salish-Kootenai, Pasqua Yaqui, Yurok (2004)
- Tribal Utility Authority Process (2010)
- Formation of Umpqua Indian Utility Cooperative (2002)